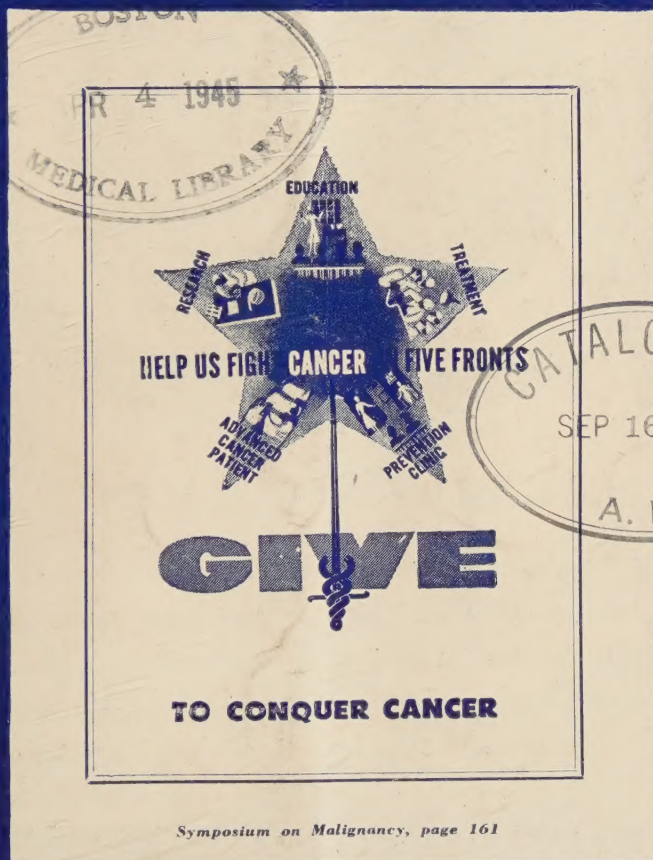


MEDICAL RECORD



March 1945

Vol. 158, No. 3

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MARCH 1945

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Late Cerebral Sequelae of Rheumatic Fever

W. L. Bruetsch (*Arch. Int. Med.* 73:472, 1944.) says that until recently, rheumatic fever has been viewed as a disease taking place within a short period of time. The newer concepts, however, emphasize that the rheumatic infection may endure throughout the entire life of some patients.

A late sequel of rheumatic fever is obliterating endarteritis which usually develops while the patient is otherwise in good health. If the vascular process involves the small meningeal and cortical vessels, gross and microscopic infarctions in the grey matter of the brain will result, producing a variety of mental symptoms. This type of cerebral involvement has been termed "rheumatic brain disease". It represents a chronic infectious process in the same sense as rheumatic cardiac disease.

The study also brings to light the high incidence of rheumatic heart disease among the inmates of mental institutions, being five percent. In the general population the prevalence of rheumatic heart disease has been set at somewhat less than one percent.

Necropsy experience has shown that in mental patients with rheumatic heart disease coexisting brain lesions are frequent. In a group of thirty patients who had rheumatic valvulitis only in one instance was the brain free of changes. In fifteen cases there were gross cortical infarctions, and in the remaining fourteen patients the cerebral changes consisted of microscopic areas of complete and incomplete softenings (acellular areas) in the cortex.

Other late but less frequent cerebral sequelae of

rheumatic fever are rheumatic encephalitis (rare) and cerebral embolism, the latter occurring most often during auricular fibrillation in patients with mitral stenosis. Rheumatic encephalitis and rheumatic cerebral embolism have been known for years. Rheumatic brain disease, however, is a new concept. In summarizing, one may say rheumatic fever in the form of rheumatic brain disease has been found to be an important etiological factor in mental illness.

Traveling Health Exhibition in Colombia

The Cleveland, Ohio, Health Museum has received authorization from the Colombian government to duplicate seventy-three units of its exhibits, to be used as a traveling health exhibition in Colombia. Among the duplicates, which will be captioned in Spanish and will occupy an area of two thousand five hundred square feet, are exhibits on preventive dentistry, tuberculosis, conservation of hearing and of eyesight, general biology of the human body, and a duplicate of the exhibit "Food for Health".

According to Dr. Ricardo Charria, Bogota, who visited the Cleveland Health Museum last year under the sponsorship of the Office of the Coordinator of Inter-American Affairs, and who arranged for the exhibit, the principal health hazards in Colombia are malaria, intestinal parasites and waterborne diseases, tuberculosis, venereal diseases, yaws, and smallpox.

Dr. Bruno Gebhard, director of the Cleveland institution, says that Colombian law requires that ten percent of the entire national budget must be devoted to education, which is free but not compulsory.



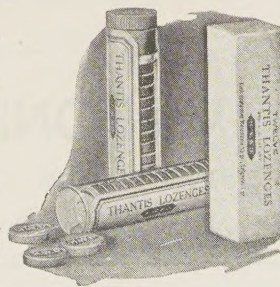
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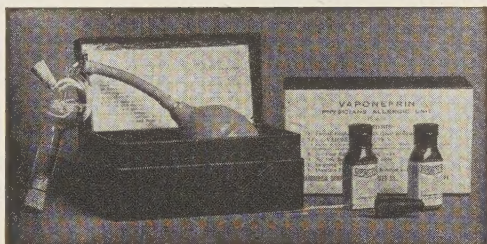
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Open Forum

Medical Pioneers in the Peruvian Amazon

MAJOR EDWARD A. WESTPHAL, M.D.

Chief of the U.S. Health and Sanitation Division in Peru

(Continued from page 74)

Locations were chosen so that these hospitals could serve as large an area as possible. Tingo Maria Hospital is in the most successful and rapidly expanding colonization project in Peru. It is the site of an important agricultural experimental station. Rubber and cinchona plantations are being developed in the area. Other important products of the area are tea, barbasco and lumber.

Pucallpa Hospital is located on the terminal of the Central Highway from Lima over the Andes to Huancayo, Tingo Maria and Pucallpa. It is an increasingly busy shipping point. Freight now is shipped over the road to Pucallpa and from there down the Ucayali to Iquitos by river boat. Pucallpa promises to become more important commercially when the highway is completed for all-year traffic. From Pucallpa, the upper Ucayali and much of the Urubamba River can be given medical attention. Moreover, Pucallpa is a station on air routes from San Ramon to Iquitos and Puerto Maldonado. The newly-built highway has been a boon to the area.

Yurimaguas Hospital is located on the Huallaga River, on an important stop on the Chiclayo-Iquitos air line. The town is a large insecticide producing and shipping center. From it, the Huallaga River area below Tingo Maria receives medical care.

San Martin Hospital is built in one of the largest Peruvian Amazon jungle towns. The town has eight thousand inhabitants and ten thousand more in the immediate vicinity. It is the center of a tobacco and coffee growing area. From San Martin medical services for much of the Department of San Martin will be supplied. The San Martin and Yurimaguas region is due for further development when the highway to Bella Vista, on the Marañon River, is completed and extended to Yurimaguas and San Martin.

Satipo Hospital is in a colonization area second in importance only to Tingo Maria. It also has an agricultural experimental station. Progress of the town has been retarded by the prevalence of malaria but has taken a decided upsurge with the establishment of a clinic, the construction of the hospital and the introduction of malaria control measures. Many colonists have moved into the area. Satipo produces cinchona, tea, tobacco, lumber, insecticides and other products.

Each hospital treats on an average of more than two thousand patients a month in the out-patient clinic. In-patient beds are always filled. A staff of thirty or thirty-five is required to operate one of them.

Next in the line in the chain of SCISP Amazon medical services are the dispensaries. These units are staffed by a physician, usually have a bed capacity for ten in-patients and do the same general work as is done in the larger hospitals. They are located in smaller towns and fill in gaps between the hospitals. They send their surgical patients to the nearest hospital. The SCISP has constructed dispensaries at Cabalococha, in a rubber-producing section on the Ama-

(Continued on page 138)



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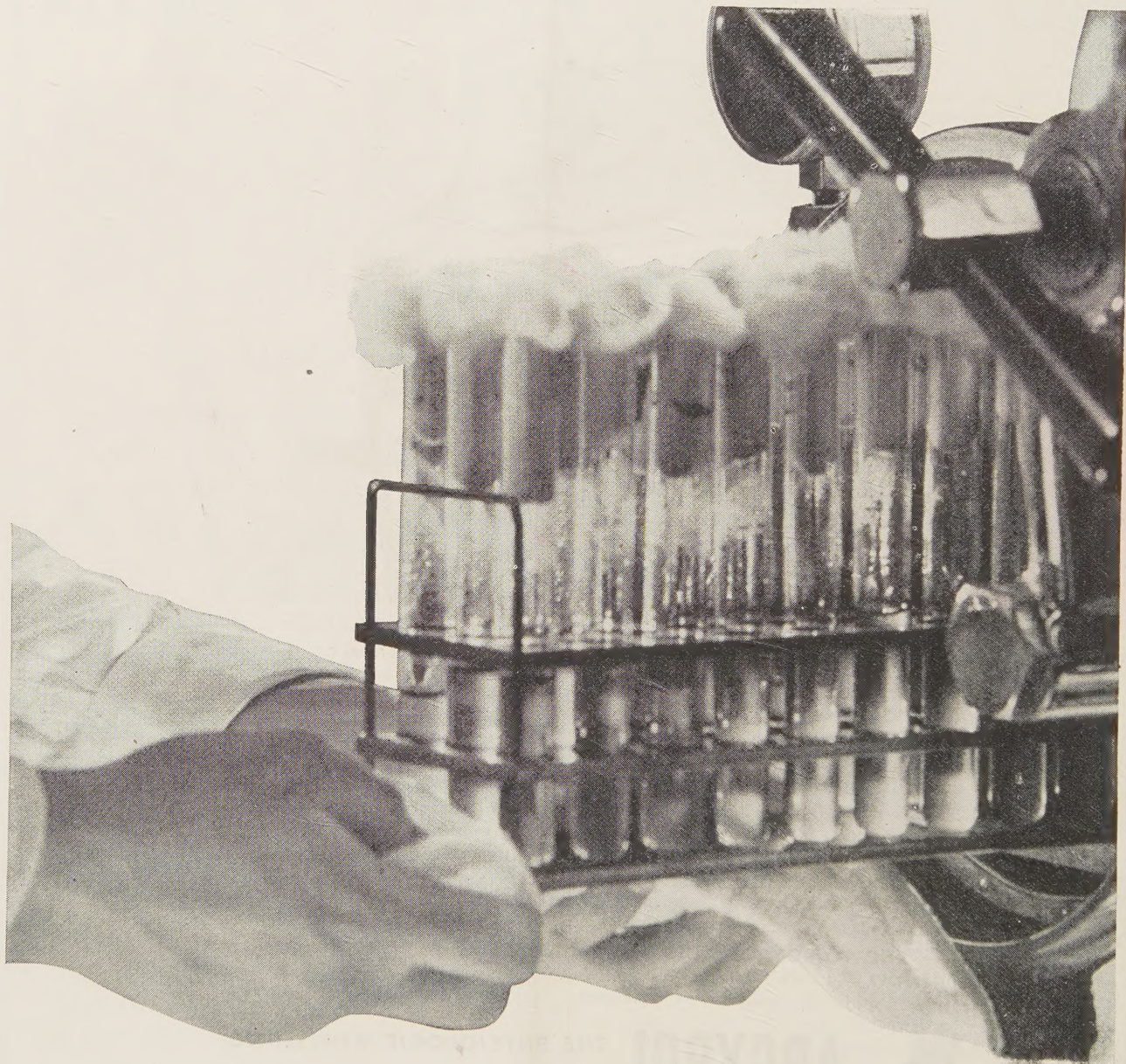
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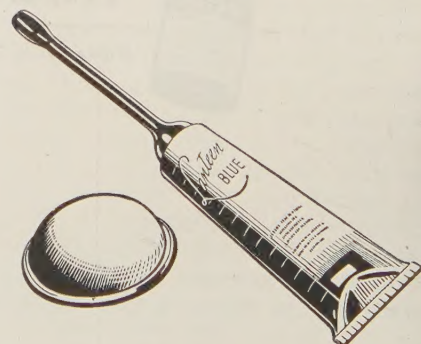
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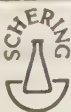
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zon below Iquitos; at Contamana, on the Ucayali between Pucallpa and Iquitos, near which oil deposits are being developed; at Barranca, on the Marañon River at Iquitos. Other units are at Borja, on the navigable headwaters of the Marañon and terminal of a new highway under construction over the Andes; and at Requena, on the Ucayali, the center of another rubber area. In addition, the SCISP is operating dispensaries in rented facilities at Puerto Maldonado and Satipo.

Next are dispensary posts, which are under the care of a Sanitary Inspector, trained by the SCISP in Iquitos. They are located in villages where it is impractical to place a physician. The inspectors devote themselves mostly to rural educational work in preventive medicine and in the improvement of local sanitary conditions. They treat common local diseases and collect cases they are not able to treat for the regular visit of dispensary launches. The work of these sanitary inspectors is supervised by the physician in charge of the dispensary launch for the area. The launch supplies them with medicines. The inspectors are responsible for a section of river up to the area of the next sanitary inspector. They travel by canoe. The SCISP has twenty-seven sanitary posts, including twelve on the Ucayali River, two on the Huallaga River, three on the highway between Tingo Maria and Pucallpa, one in the Madre de Dios area, one in Satipo, two on the Amazon, three on the Marañon.

Last in the chain of medical services are the dispensary launches and mobile units on wheels. These perform the same functions as the other units but

serve the more sparsely settled river population. Three launches are in operation. The launches make regular trips on the Amazon, Marañon and Ucayali Rivers. Most hospitals and dispensaries are supplied with an outboard craft, permitting them to look after nearby areas. A wheeled unit operates on the highway between Tingo Maria and Pucallpa, treating colonists, highway, rubber and cinchona workers.

So much for the jungle proper. Several months after its creation, the SCISP also was assigned the job of carrying out the sanitation of Chimbote, an extremely malarious port north of Lima where harbor installations and industrial works are in progress. Here the SCISP is draining malarial swamps, installing a water supply and distribution system, building sewage disposal facilities and a hospital and health center.

Specially trained personnel are needed for SCISP projects. For training of physicians in preventive medicine and of visiting public health nurses, the SCISP is building a health center in the Rimac District of Lima. This center also will serve as a demonstration unit. The SCISP, through the Institute of Inter-American Affairs, is sending doctors, nurses and engineers to the United States for public health training. Seven physicians, two nurses, two sanitary engineers and one public health educator have been sent for training in United States universities. They are committed to continue working for the SCISP on returning to Peru.

Contrary to what many people believe, the jungle is not an unhealthful place. With a little knowledge and proper precautions, one may live quite health-

(Continued on page 142)

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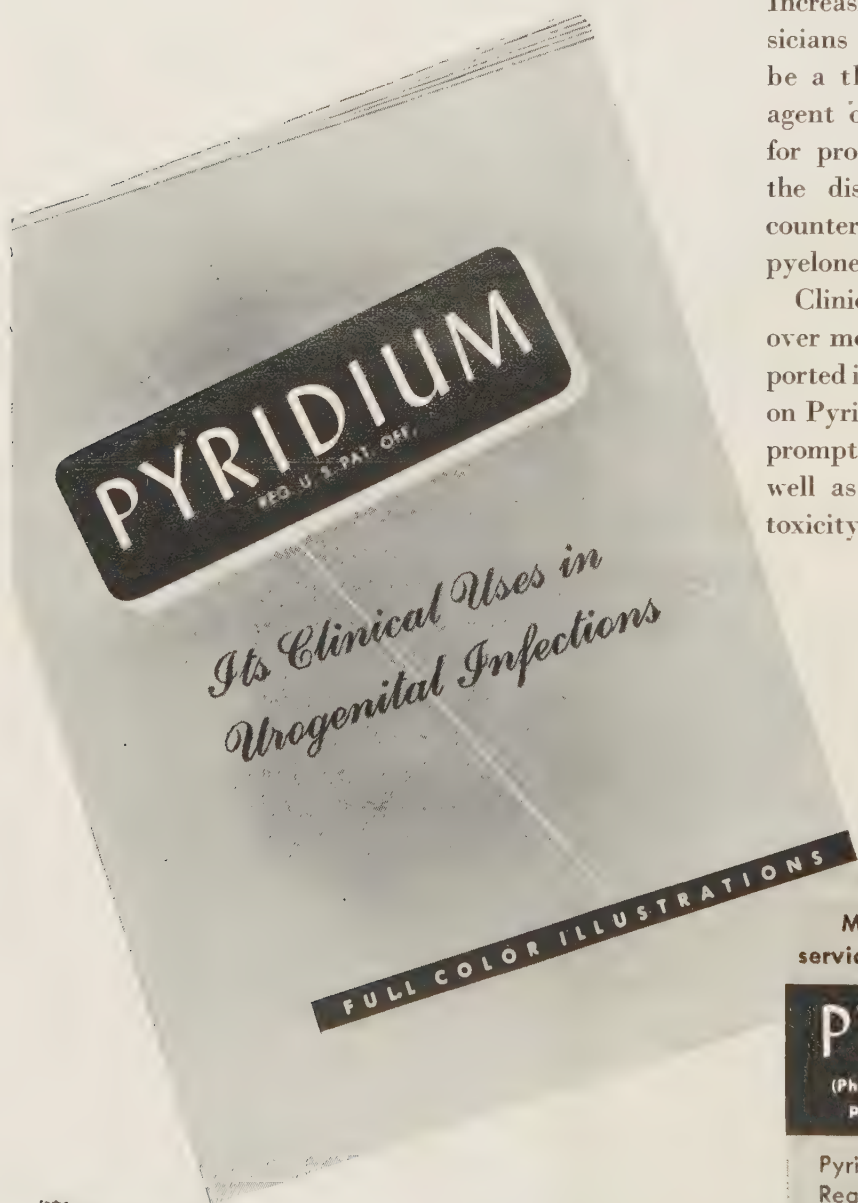


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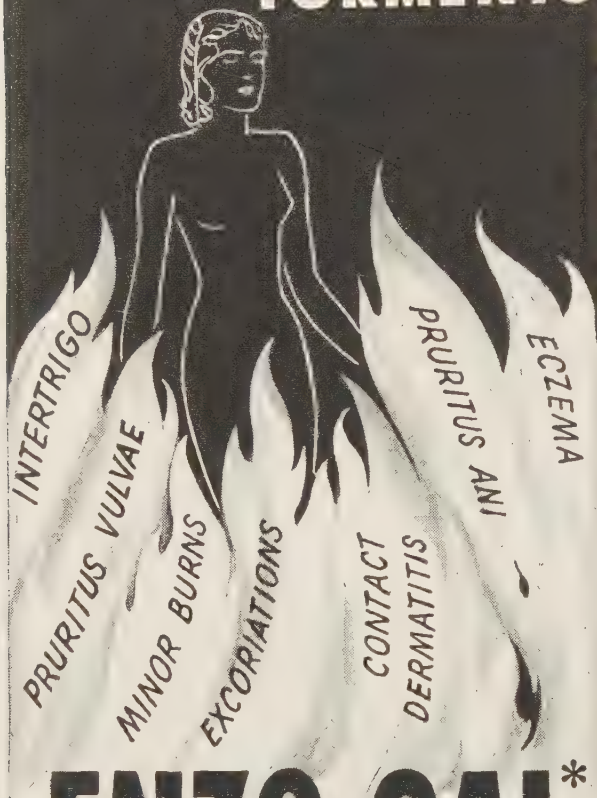
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fully in the jungle. Treatment of disease is but a small part of the work necessary to make the Amazon jungle healthful for economic development. Disease treatment is only a palliative. The health work aims mainly at the elimination of disease at its source. This means that each hospital and dispensary must be a center from which the community is educated in the prevention of disease and for control measures designed to eliminate such disease carriers as mosquitoes, flies, and contaminated water.

The most common and harmful disease of the jungle is intestinal parasitosis, chiefly hookworm. In surveys we have found that at least ninety-five percent of the patients suffer from intestinal parasites. This is due to the lack of toilet facilities and non-use of shoes. Hookworm is transmitted by stepping on contaminated soil. Children suffering from hookworm are thin and pale and pot-bellied. Many die from anemia. Much educational work needs to be done before hookworm is controlled.

Other common diseases are malaria, tuberculosis, yaws, tropical ulcers, venereal diseases, leprosy and leishmaniasis. Most of these can be prevented by proper precautionary measures and knowledge. Most of the jungle inhabitants are undernourished, making them easy prey to disease. They live on a salted dry fish called "Paiche", yuccas (manioc root) and bananas. They need to be taught to eat properly, but changing dietary habits is difficult.

In Tingo Maria people at first were unfamiliar with the health program. Now there is a marked change. Privies and safe wells for drinking water are being built. More children are wearing shoes. The general health level is rising. Tropical ulcer and leishmania have almost disappeared. The same is happening in varying degrees in other localities. Satipo has many new colonists moving in as malaria decreases. The hospital inspires a feeling of security. We like to think that the increased tempo of progress is in part, at least, due to the hospitals and the improved sanitation.

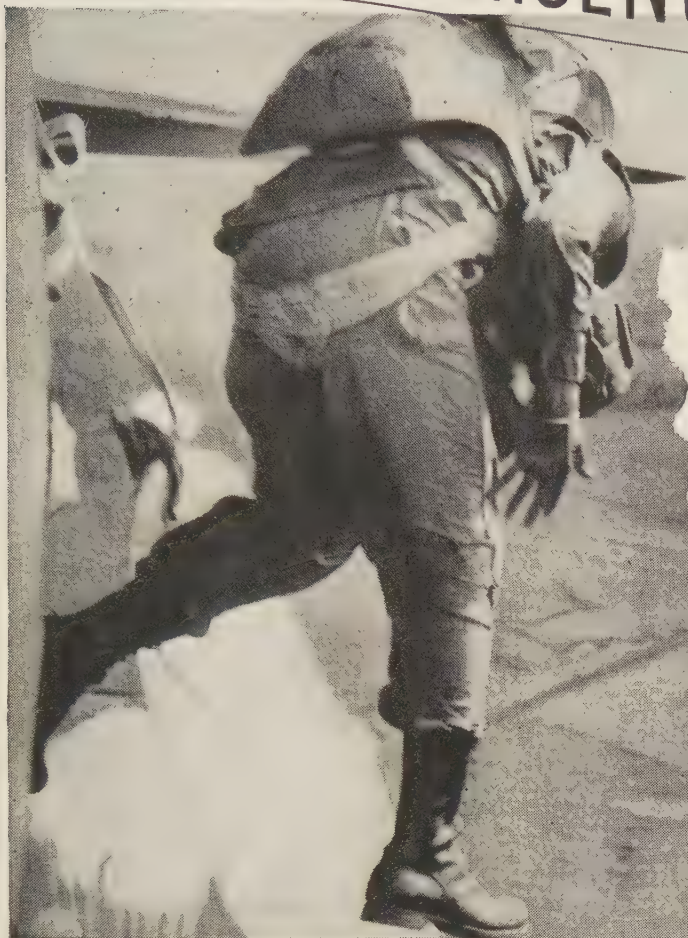
The work by the SCISP is but a small fraction of that being done by the Ministry of Health in Peru. The SCISP is temporary and is dedicated only to the jungle and to Chimbote. An indication of the increasing amount of overall health work being done by the Health Ministry can be found in its budget. In five years this has increased from around three million to more than twenty million sols.

What is being done in the jungle is but a beginning, adapted to local conditions and the economic means available. More needs to be done before the Amazon area, with its potential riches, becomes completely safe for economic development. But the hemispheric cooperative health program started by the Rio conference provides a basis for expansion of the work and a beacon for the future in Amazon development.

Cold Spring Harbor Symposium Postponed

The board of directors of the Long Island Biological Association decided, at its January meeting, to postpone until next year the Cold Spring Harbor Symposium on Quantitative Biology, which had been planned for this summer, according to *Science*. This action was taken because of the uncertainties of travel and the difficulty in obtaining adequate living quarters and food service. The subject of the symposium was "Variability and Heredity in Microbiology."

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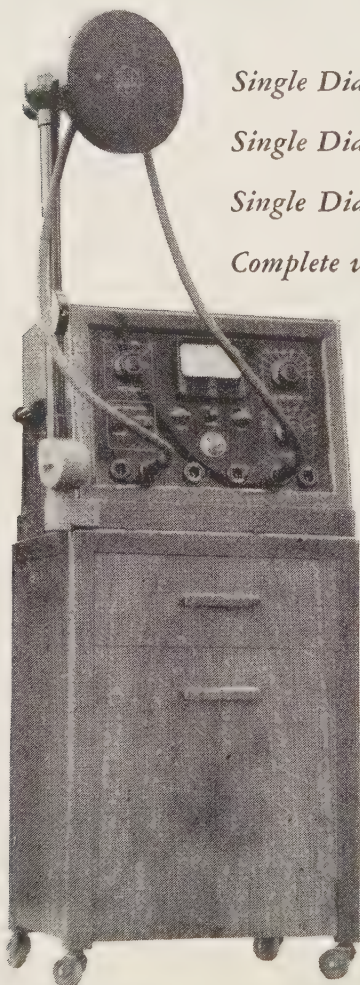
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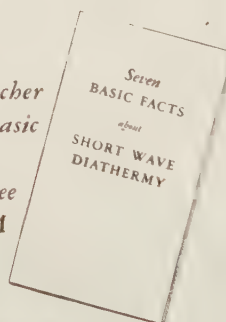
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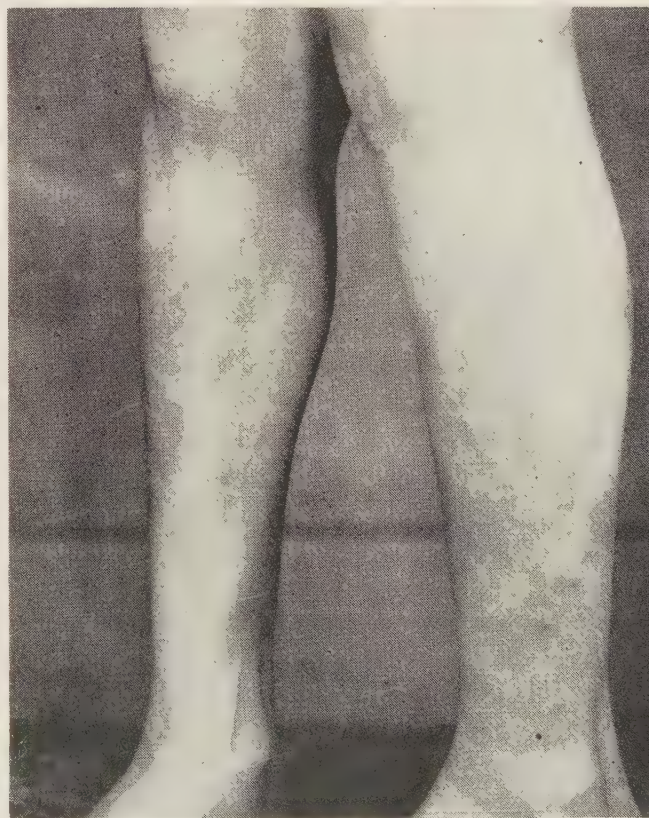
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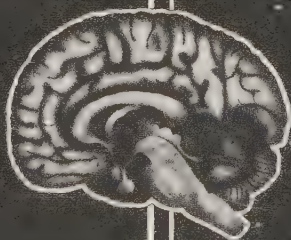
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Aphrodisiacs

Louis XIV enjoyed the reputation of consuming large quantities of cantharides. It is recorded that Madame de Pompadour, his favorite, consumed such large quantities of the drug that she became crazed. Aristotle, about 350 B. C., was probably the first to recommend cantharides as a sexual stimulant. Pythagoras recommended various berries for the same reason. Savages used yohimbe bark which they believed stimulated the sexual powers. In 1876, Spiegel extracted an alkaloid from this bark which has since been used extensively for this purpose. In 1875, Byrd introduced the damiana plant as an aphrodisiac. Its therapeutic qualities are doubtful. Káva-káva, a species belonging to the pepper family, was introduced in 1844 by the natives of Tahiti as an aphrodisiac. It was used as a beverage and was capable of inducing intoxication. Old literature indicates that the majority of the people were "voluptuousness minded". During the Renaissance, the culinary department was the source of many aphrodisiacs. Cock's combs, testicles, cantharides, and sparrow brains were served in combination with various foods. Testicles of frogs, rams, donkey sperm, and menstrual blood eaten with food maintained popularity as a remedy against impotency and as a sexual stimulant. Avicenna, whose writings appeared from 980 to 1037 A. D., mentions the value of eggs, especially those of the sparrow, as valuable aphrodisiacs. The addition of onions and moss to the eggs enhanced their value. During the time of Pliny, 23-79 A. D., the Greeks prepared a drink from the satyrion root which was given at the time of a marriage ceremony to stimulate sexual activity.



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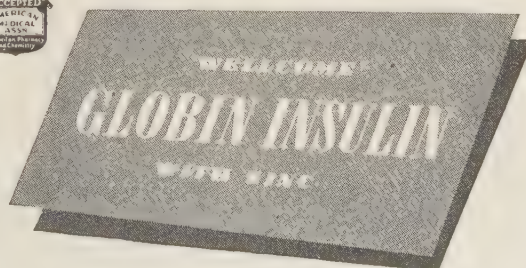


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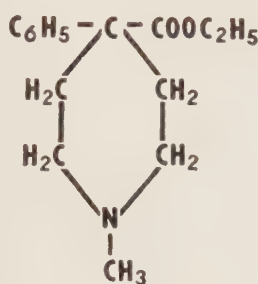
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Don't Neglect Cancer

Clarence C. Little, managing director of the American Cancer Society, says that never before have we been so aware of the life saving power of scientific research. Out of the laboratories and on to the firing line, where millions of our young men are risking their lives, have gone sulfa drugs, penicillin, and dried blood plasma. From the past we can take the names of killers conquered by science—yellow fever, smallpox, diphtheria, and typhoid.

Today research against cancer stands on the threshold of new and great advances. It has already given us ways of producing and of controlling the production of the disease in laboratory animals. It has begun to give us knowledge of how cancer cells differ from normal cells. But cancer research needs financial support and more trained workers. It must be given material aid and security to make it efficient and increasingly powerful.

Never before have we understood so well how to organize for the detection of precancerous conditions or to identify cancer in its early and curable stages. Few as yet realize the nature of the emergency which cancer presents. There are seventeen million living Americans who will die of cancer unless something is done. There are at least five million, five hundred thousand of them who can be saved from death from cancer by simple, direct means.

You who read this are one of the "means" by which these lives can be saved. Learn the danger signals that may mean cancer and the ways in which the risk of cancer may be decreased. Pass this information on to others. Enlist during April in the Field Army of the American Cancer Society. If one of the danger signals appears either in your own life or in that of a friend insist on prompt fearless action. Go to your doctor for examination and advice.

Education alone can save millions of lives even if research does not advance. No one can afford to be too busy to neglect this challenge. It is a choice between intelligent protection of yourself and those you love on the one hand, and ignorant risk of health, happiness and perhaps life itself, on the other.

The American Cancer Society has been for over thirty years the one great National organization devoted to study and development of plans for cancer control. It stands firmly on three fronts where it is face to face with the enemy—Research, Service, Education. It is going forward in support of all of these fields. It is going to take with it millions of Americans, who realize the great need and their power to help.

The American Cancer Society may have a division of its Field Army near where you live. If so go to it for free information. If it is difficult or impossible to reach a local division, write direct to the American Cancer Society, Empire State Building, New York 1, N.Y.

The Medical Corps

The following tribute to the work of the Medical Corps in the present war was published in the *New York Times*, Jan. 5, 1945:

The "medic" is a must in any fighting force. He is likely to combine the functions of Kipling's Gunga Din, Florence Nightingale, the Good Samaritan and the most skillful surgeon science has produced. He frequently does so at the cost of his own life. Unarmed

stretcher-bearers seek out the wounded where the shells are still striking. Because they know that time is of the essence, they are always in a hurry. Sometimes a complicated operation has to be performed in a foxhole. During the Metz offensive a nineteen year old medical aide saved a doughboy's life by cutting a fountain pen tube into his throat with a pocket knife. But they try hard to get the victim to the nearest hospital. Maybe it is a blasted barn or an open cellar. It may be a tent over the brow of the next hill, with the surgeons operating under enemy fire. At Bastogne two or three surgeons had to handle eight hundred patients with nothing to dull their pain but cognac. Everybody cheered when five more surgeons got through by plane and glider.

There is little glory in the Medical Corps. It is just hard, dirty work and mighty dangerous. The Red Cross seems to mean little to the enemy. He has bombed hospital tents from Anzio to Aachen. These medics are tough, but among the torn and dying, men learn to be tender too. They shun glory, but they have their pride. They are proud to have saved ninety-seven out of every hundred wounded. They are proud that their miracle drugs and blood banks send from fifty to eighty back to fight again. They are proud because nobody in our whole vast Army, not even the foremost combat crew or the deadliest flying wing, has done a finer job than the Medical Corps.

Russian War Relief

At a meeting of the board of directors of Russian War Relief, Inc., held in New York on February 5th, it was reported that during 1944 a total of \$22,695,112.71 in good and cash had been received. Clothing, medical and surgical supplies, household kits, seeds and miscellaneous relief items valued at \$14,675,839.81 were contributed to the agency direct and \$8,019,272.90 in cash was contributed through the National War Fund. Supplies valued at \$66,294.49 were turned over to Russian War Relief during the year for processing, packing and shipping to Czechoslovakia by American Relief for Czechoslovakia, Inc., supplies valued at \$31,919.25 destined for Poland were similarly handled during the year for Polish-American groups.

During the year relief supplies valued at \$19,233,694.36 were consigned to the Soviet Union. Clothing, shoes, blankets and textiles composed seventy-three percent of the goods shipped during 1944, according to the agency's report, with medical, surgical and chemical supplies the next largest category of goods at 12.3 percent; household utility kits, 9.3 percent; vegetable seeds and foodstuffs, 3.9 percent, and other miscellaneous relief items 0.7 percent. The remaining 0.8 percent of shipments, valued at \$130,000, represented supplies received from committees to aid the Soviet Union in Mexico, Colombia, Puerto Rico, Cuba, Chile, Brazil, Argentina, Trinidad and South Africa.

A total of 10,500 tons of relief supplies had been shipped for civilian use in liberated regions, the report stated.

The executive committee of the board of directors recommended that Russian War Relief undertake to collect and purchase \$12,000,000 worth of supplies in the first six months of 1945. He stated that a goal for the final six months of the year would be set after a discussion of the types of supplies necessary.

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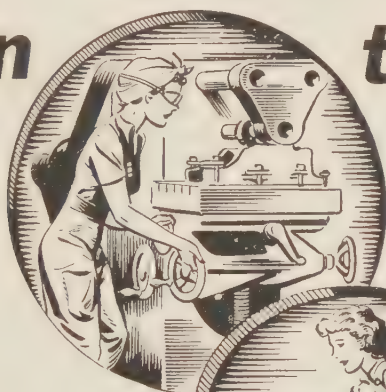
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Syntropan has the desirable, antispasmodic actions of belladonna or atropine, but does not depress salivary secretion as actively nor induce mydriasis as readily. When used to induce mydriasis, its influence is not as profound nor as long in duration as that of atropine. The inhibitory action of Syntropan on the parasympathetic innervation of the heart is negligible and not as pronounced as that of atropine. Syntropan has a definite antispasmodic action on spastic smooth muscle, the antispasmodic influence being due jointly to inhibition of the parasympathetic innervation and to direct peripheral relaxing action on the muscle fibers themselves . . . HOFFMANN-LA ROCHE, INC., NUTLEY 10, NEW JERSEY

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MEDICAL RECORD

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WHOLE No. 2746

THE ART OF EATING PROPERLY*

The Harm of Eating Too Rapidly and Too Slowly

MAX EINHORN, M.D.

New York, N.Y.

Eating or partaking of food is our principal means of sustaining life. Without this the organism cannot thrive, cannot gain in weight (grow), and can exist only a short while. During the time of total abstinence the body lives upon its own substance, steadily losing weight, and soon dies. It will, therefore, not be out of place to devote our attention to this subject.

In the animal kingdom, as well as among uncivilized peoples, the obtaining and taking of food forms the principal occupation during life. The necessity of obtaining food has remained the same with civilized man, but the manner of partaking of it has been changed partially to his disadvantage. New interests have arisen and the act of eating has been partially relegated to the background. Many busy persons scarcely take time to eat; they swallow hastily any kind of food, without special selection, at times poorly prepared. The natural consequence of this is that under these conditions diseases of the digestive system develop quite frequently.

I may be permitted to describe first, in a few words, the art of eating properly (euphagia) and then discuss two improper modes of eating (tachyphagia and bradyphagia).

Euphagia

Like all natural processes, the partaking of food, if done in a correct manner, affords the body pleasure and satisfaction. For this purpose, however, the organism must be prepared by previous work and subsequent rest. In the Bible the following quotation is found: "In the sweat of thy brow shalt thou eat bread". This shows the importance of work on eating. A similar proverb exists in the German language: "Arbeit macht das Leben süß" (Work sweetens life), which sentence naturally refers not only to eating but to all functions of life. Granted, however, that work is necessary, yet it must not be in excess or lead to exhaustion, as in this condition the appetite usually disappears and digestion becomes sluggish.

Meals are best taken during those periods when the body is at rest. The time for taking food must not be too short. During the meal it is better not to think of business, or serious, or, perhaps, even sad

things. Our whole and undivided attention should be given to our meals. Pleasant company, light conversation, jokes and stories add to enjoyment of food.

It is generally known what a powerful influence the brain exerts over our digestive faculties. Great grief robs us of our appetite and may cause real disturbances of digestion. Pawlow has lately established the physiological importance of the mental state on digestion, having shown, for instance, that delicacies produce secretion of gastric juice as soon as they are perceived by the eye, even before they are eaten. Food must not only be palatable, but must be served in an attractive manner (fine dishes, table decorations, etc.).

In eating we must take time to chew our food thoroughly. This serves a double purpose: 1, through the act of mastication the coarser particles of food are broken up; 2, more saliva is secreted and is thoroughly mixed with the food. The digestion of starch is thus materially aided, and the proteids are made more easily accessible to the action of the gastric juice.

Water should accompany each meal. It increases the appetite and the enjoyment of food. It also serves a useful purpose when substances are taken into the mouth, or even swallowed too hot. A mouthful of cold water will at once lower the temperature and obviate any danger of burning. After eating we should rest a little while before returning to our work.

Tachyphagia

Tachyphagia, or hasty eating, is a common evil. The food is only half masticated, or not at all, and enters the stomach without being properly insalivated and comminuted. It is easily seen that thus the foundation for many a stomach or bowel ailment is laid. The coarse food causes too much irritation to the gastric mucous membrane, and it is not sufficiently acted upon by the gastric juice, which usually only affects the external surface, leaving the rest unchanged. This refers particularly to the digestion of albuminoids. Starch, however, under these conditions is also left without any alteration, because the ptyalin of the saliva is not present in sufficient quantity. The chyme, therefore, reaches the bowel practically unchanged, causing here almost a state of irritation. Besides the mechanical effect, however, tachyphagia has other

*Reprinted from *Medical Record*, January 7, 1905. First article in a series on problems of diet and nutrition.

drawbacks, because it encourages the taking of large quantities of food in too short a time, and the consumption of foods too hot or too cold. In eating correctly a provision is made that not too much food passes into the stomach at once, for mastication requires time; besides some time is spent in conversation and in serving the different courses. The temperature of food and drink is partially equalized by the slow passage through the mouth and esophagus. All these factors are absent in eating too rapidly, and we thus have the two obnoxious points spoken of above, viz., unsuitable quantity of food and unsuitable temperature—two conditions that often cause digestive disturbances.

Clinically the disadvantages of tachyphagia are so well known that it does not seem necessary to illustrate them by means of examples. Every physician has observed cases of gastric and intestinal catarrh, hyperchlorhydria, and other tedious digestive disturbances, the etiological factors of which could be found in the existing tachyphagia.

Bradyphagia

By bradyphagia (eating too slowly) we understand a condition in which the eating is performed abnormally slow, so that the body economy is thereby injured. In general, physicians will more often have to battle against the above described tachyphagia, advocating a properly slow, or, more correctly, a rational mode of eating. This, however, may be, and is indeed overdone by some persons to their detriment. In such cases every morsel is masticated and remasticated, and before being swallowed is again chewed and everything carefully tested with the tongue, whether it has been thoroughly comminuted. An abnormal fear and suspicion develops in this manner, and for such a person eating is a difficult task. The enjoyment and pleasure of eating are transformed into a doleful process, and thus frequently a smaller quantity of food is taken than usual. Not rarely it happens that the bolus occasionally remains in the pharynx or esophagus and refuses to budge. It is not an organic affection that causes this variety of dysphagia, but merely the excitement and fear of eating. In these cases, in course of time a chronic inanition develops owing to bradyphagia and the added temporary dysphagia, in consequence of which the patient gradually becomes weaker and occasionally dies, unless we combat the evil energetically at once.

Since bradyphagia is a comparatively rare occurrence, I do not hesitate to give a few examples of it.

Case I.—April 2, 1896. G. I. L., thirty-two years old, lawyer, had suffered for the last five or six years from digestive disturbances. He had lost considerable flesh, and had been unable for the last three years to attend to business. He complained of his inability to swallow food and of intense pains in the upper abdominal region, particularly after meals. He had lost in all about forty pounds, of which the smallest quantity in proportion was lost during the last six months. He kept to a strict diet and ate very slowly, taking a half hour to consume a glass of milk.

Status præsens. The whole body is emaciated; examination of the thoracic organs gives negative results; the stomach extends to about two fingers' width

below the navel. The epigastrium is slightly sensitive to pressure. One hour after test breakfast the stomach contents showed the presence of free HCl, and an acidity of 78. The swallowing sound occurred seven seconds after the drinking of water.

In the absence of any organic lesion the diagnosis of neurasthenia and hyperchlorhydria was made. The difficulty in eating was explained by the psychic excitement subsequent to the sitophobia and bradyphagia. The patient was put upon a more liberal diet and advised to eat more quickly. In three weeks he gained eleven pounds; he continued to gain in weight and recovered entirely.

Case II.—March 23, 1903. Mrs. R. F., about thirty-five years old, had been suffering from digestive disturbances for the last three years. She claimed to have pains in the epigastrium after every meal, and suffered much from belching, constipation, and lack of sleep. She was much run down and had been unable for the last two years to look after her household duties. She said that she ate only the lightest foods (principally liquid diet) with the greatest care, requiring twenty minutes for the ingestion of half a plate of soup, and twenty-five minutes for a cup of milk. Owing to these important precautions, she was obliged to take her meals alone. She was surprised that in spite of all this she did not improve. The diagnosis of neurasthenia, hyperesthesia of the stomach, and bradyphagia was made. The patient was told to eat a variety of plain and simple foods, and to eat and drink more rapidly. In two or three months she had completely recovered. She ate with the family and was again able to attend to her household duties.

Treatment of Tachyphagia and Bradyphagia

All persons who eat too fast should be warned by their physicians. They should be told to take more time for their meals and to chew their food thoroughly. If the time for eating is occasionally too short, as in railroad journeys, etc., it is better to omit the meal or to take only something fluid (a glass of milk, a raw egg, or some beef tea).

To combat bradyphagia—observed in neurasthenics, and only rarely even in them—we must take active measures, as it is impossible to cure them as long as the bradyphagia exists, owing to the too small quantity of food ingested. They should be told to eat more and more rapidly, and not to take too small bites or to chew too long. Fluids must be taken in larger quantities (not teaspoonfuls at a time). They should not take their meals separate from the rest of the family, but should eat at the common table and finish at the same time as the others.

Frequently these instructions alone will be sufficient to correct this fault. If, however, this is not the case, then we must take refuge for a time in sedative drugs (bromides, valerian, etc.), in order to allay the psychic excitement during the time of eating. If the patient, with the aid of these drugs, has accustomed himself to take a few meals in a correct manner without suffering, he will then usually have enough confidence in himself with regard to his ability and will get along without medicines. The removal of bradyphagia will frequently smooth the path to convalescence and enable the patient to get entirely well.

20 EAST SIXTY-THIRD STREET.

PHYSICAL THERAPY UNITS AND METHODS USED BY THE NAVAL MEDICAL DEPARTMENT, PHILADELPHIA*

LIEUTENANT COMMANDER J. L. RUDD, MEDICAL CORPS, U.S.N.R.
San Francisco, Calif.

(Continued from page 94)

3. Refrigeration Therapy

Although we have not been using any apparatus for refrigeration therapy, we would like to aid other departments in employing refrigeration therapy in malaria, filariasis and Sudeck's atrophy. More work could be done with it on the inoperable cancers where there is intractable pain. Some investigators (3) have reported good results in severe headaches due to neuralgia or migraine. Instead of the old, inconvenient method of packing the patient in ice, there is a new equipment designed to control temperature without the need of ice. The hypothermia outfit is connected to an ordinary line current. It furnishes cold instead of muscular contraction, electrophoresis or heat.

Refrigeration therapy should be included in the Naval physical therapy department, when facilities are available. It is a new form of electrotherapy.

4. Shock Therapy

The use of a mild form of shock therapy might be employed for some of the cases of combat fatigue, neurasthenia, psychasthenia, malingering and similar problems. A mild form of shock can be given by applying a headband with a cup electrode placed on each temple. The hydrogalvanic machine "shock" technique is the method of choice and is briefly discussed below.

For the production of mild cerebral shocks, two cup-like electrodes, packed with cotton moistened with a tannin bark solution (tecasol) are applied to the temple regions by an adjustable headband. The wire ends are plugged into the positive and negative terminals on one side of the hydrogalvanic machine. Starting with the meter at zero a gradual increase in voltage is effected, while constantly changing the polarity from positive to negative and vice versa, until the patient feels a distinct shock.

The polarity is changed every twenty to thirty seconds for the three to five minutes of shock therapy.

Newer Methods

A modified form of general fever therapy.—One to four hour sessions of fever treatments (two to five in number) for acute arthritis, bronchial asthma and sinusitis, have been found useful in obtaining relief of symptoms for at least fifty percent of the patients placed in the cabinets. The temperature of the patient need not be raised over 101° to 104° F.

In a series of eleven cases of intractable bronchial asthma treated at the Philadelphia Naval Hospital (4) seventy-three percent of the patients taken out of the hyperthermia cabinets showed improvement. A more recent group of three patients, previously unresponsive to the usual medicaments, on whom a mild fever therapy was used, two showed definite remissions from

asthma attacks, while the other one was only temporarily relieved.

In cases of sinusitis, Edward Randall, Jr., of Galveston, Texas, has reported good results with a modified fever therapy. Of the four cases in which we employed this treatment, definite improvement was noted the following day, although for the first twenty-four hours after treatment there was more headache and an increased temperature of one to two degrees F. Two of the patients were definitely relieved of symptoms while the other two had recurrences, after a period of temporary relief.

In rheumatoid arthritis a series of nineteen patients, unrelieved by other methods of treatment, were given a short series of modified fever therapy. The response appeared to be as good with the short treatments as with the longer, higher temperatures. An average of fifty percent of the patients showed improvement.

The simplified, safer management is carried out as follows: In bronchial asthma, four treatments, twice a week, of one to four hours each, at 102° to 104° F.; in rheumatoid arthritis; four to six treatments, every other day, of one to four hours each at 102° to 104° F. Shorter treatments and lower temperatures appear to give fair results in these two conditions. These findings compare favorably with those gained by the employment of the higher temperatures of 105° to 106° F., for six to seven hours.

More work with short, mild fever therapy can be performed because the hypertherm cabinets, formerly used for the sulfathiazole resistant gonorrheas (before penicillin), can now be employed for the abbreviated treatments.

Artificial ultraviolet to increase resistance to solar radiation.—A number of persons who were sensitive to solar radiation were treated with the ultraviolet generators.

Of interest was the possible value of artificial exposures to the ultraviolet radiations (of the hot or cold quartz burners) for those light skinned, sensitive persons who cannot tolerate the rays of the summer sun. In another article (5) there is presented an account of a few significant cases, in which the patients were able to receive long exposures to the sun's rays without suffering from any of the ill effects they had formerly experienced. They had received a series of graduated doses of the artificial ultraviolet rays. Never before had they been able to subject themselves to solar radiation for more than a few minutes without the development of a "dermatitis actinica". After a gradual increase of dosage with the quartz burner for three to four weeks, every second or third day, a two to three hour stay in the summer sun could be endured. In persons who had a normal skin sensitivity this tolerance could be increased by preliminary exposures to artificial ultraviolet radiations.

Such a method of preventive treatment permits the increase of toleration in persons with a normal reaction

*The opinions and assertions contained herein are those of the writer and are not to be considered as official or reflecting the views of the Navy Department or the Naval Service at large.

to the sun's rays, as well as improvement in endurance by those easily affected by solar exposure. Prophylactic, artificial ultraviolet radiations can be given to service men who are sensitive to the sun's rays and to all the others who are being sent to a tropical or semitropical climate.

Penicillin electrophoresis for iritis.—The Eye Service sent a few patients suffering from iritis for treatment by common ion transfer. Injections of typhoid vaccine, nonspecific protein therapy and penicillin intravenously, with local applications of penicillin and atropine, had been tried without relief.

Three patients were treated and two showed definite benefit from the treatment given. The two cases in which there was improvement are described below.

CASE I.—P.O., a man, aged thirty, had iritis of the right eye with severe pain, ciliary injection, photophobia and diminution of vision. Sodium penicillin solution, one percent, saturated the cotton in an applicator which was connected to the negative pole of the galvanic current. The applicator was a special, shallow, cup-shaped eye electrode attached to the negative pole of the hydrogalvanic machine. The patient held the handle of the applicator with one hand (thus making contact with the positive pole on the apparatus). A current of around four milliamperes was used for approximately five minutes, to drive the penicillin from the negative electrode through the superficial layers of the eyeball toward the positive pole. Improvement was noted after the first treatment. The pain disappeared and vision returned to normal.

CASE II.—T. G. B., a veteran, aged fifty years, had an eye condition which had been diagnosed as "iritis" by an ophthalmologist. This man had severe pain in the right eye, with haziness, redness and loss of vision. After four treatments the pain had completely disappeared, while considerable relief was evident after the second treatment. Vision, except for a slight haziness, was good. Previous routine treatment had been of no avail.

These cases demonstrate the advisability of using the sodium penicillin by common ion transfer when the usual methods of treatment for iritis do not bring the hoped for results.

One should consider the potential usefulness of this method not only in eye conditions, but also for bursæ and joints infected by the organisms of gonorrhea, syphilis, the staphylococcus or streptococcus.

A new use for electrocoagulation.—In the discussion of some of the newer trends in treatment, a method of electrocoagulation, that can be employed in the treatment of sebaceous cysts or wens, is worthy of note.

This method was used a short time ago when a patient refused the usual operation for the removal of a cyst on top of her head. She wanted it "drained", even though she knew it might recur. She was told that, in order to avoid the surgery she dreaded, a little opening could be made on the top of the cyst with an electric needle and the waxy material could be removed. This met with her approval so, without novocaine injection, a small opening was made on top of the wen and some of the contents of the sac removed. The remainder of the contents and the inner portion of the sac were electrodesiccated. Two weeks later the patient returned and stated that, as she was combing her hair, the comb stuck on a scab over the site of the electrocoagulated

area. On examining the area with a small toothed forceps it was found that the scab appeared to be loosely attached to the scalp, but firmly connected to the white, glistening, outer layer of the connective tissue sac. With a mosquito forceps firmly grasping the scab and with firm traction upward, the shrunken sac of the sebaceous cyst was removed in toto. It was sufficiently contracted so that, with a moderate amount of traction, it could be pulled through the small opening made by the previous application of the electrical current.

It seems reasonable to suppose that the heat of the electrical current applied to the inside of the sac, with or without its contents, was sufficiently strong to cause a drying of the residual sebaceous material in the sac and a shrinkage of its coating, with a loosening effect away from its close apposition or attachment to the surrounding tissues.

Since then, cysts on the nose, wrist, head and neck have been removed by this method with no recurrences to date. The reason for the nonrecurrence, in the sometimes only partially removed lining of the sac, appears to be due to the above mentioned heating of the lining membrane of the sac, and the destruction of its sebum producing power by the coagulating or desiccating current. More recently, attempts to remove the sac and its contents at once, instead of waiting a couple of weeks for the shrinkage resulting from the heat of the electrical current, have succeeded. This was accomplished by the use of novocaine, a small probe or blunt edged small scissors to separate the sac wall from the surrounding tissue, and the removal of the sac through the small opening made by the electrocoagulating needle.

One young man, immediately after having what was considered an almost complete removal of a cyst and its contents by this method, began pressing around the operated area. He called attention to something that had popped out, onto the floor, with a soft thud. The object on the floor consisted of dried sebum and half of a sac wall. Although this had not been removed, at first, it was sufficiently dried and separated from the surrounding tissue as to be easily expressed.

This method, which causes drying and shrinkage, is especially useful for small infected cysts. With ordinary surgical precautions, the pus of the infected cyst can first be drained through an opening made by an electrocoagulation needle and then the cystic material can be either partially or completely extruded. Whether the sac is totally emptied or not, the electrocoagulation needle is held within it and against it, until sufficient desiccation or coagulation has taken place and the contents are thoroughly dried and vitiated. After a week or two the whole sac can be removed or the inspissated tumor left as it is, to be gradually removed by the phagocytic cells in the blood stream.

Resistive exercises.—The exhibit shown by the Naval Physical Therapy Department at the "Symposium on War Medicine" depicted many cases of military injuries in which the patients had had resistive exercises and passive stretching as part of their physical therapy regimen, in the attempt to rehabilitate them. The resistance and stretching method, as we use it, though not exactly new is now more intensively employed in military wound cases, than was true of such practice in the past. There appears to be justification for its use because of the more rapid restitution of muscular and joint function.

The resistance method has, as its basis, the cooperation of the minds and the antagonism of the muscles of two individuals. Each one sees in the other a friendly opponent that he must prepare to lift, push or pull against. When the patient is ready to do this, his muscles are physically prepared to exert themselves to overcome the expected obstacle. There results an immediate increase in muscle efficiency by an increase in muscle tone and by a subconscious tendency to muscle "setting" (isometric contraction).

The patient is usually the active member of the two, while the operator furnishes the necessary control and resistance. If the doctor (operator) feels that an effort in excess of that consistent with benefit is being expended on the injured part by the patient, the resistance is immediately lessened or stopped and muscular action is permitted to take place unhindered or even aided, if necessary.

As in the Kenny method, muscular action and muscle insertion are explained to the patient where this is thought to be helpful in reestablishing function. If there is a tendency to muscle spasm, fibrillation, or any other sign of pain or fatigue, the patient is given a rest period, or better, the treatment is discontinued until the next day.

Learning the amount of effort the wounded patient can and should expend is an important part of the doctor's and technician's task, and the exercises must be regulated accordingly. This sort of mechanotherapy can be suited to the individual problem in the early convalescent stage better than is the case with most of the other forms of physical exercises. In this way, by individualizing the treatments, the extent of the disabilities caused by the missile, the state of the neuromuscular and articular mechanism, and the type of patient can be better gauged and managed. The advantage of this method should be kept in mind when deciding upon which of the various remedial exercises are to be used in restoring function in the early convalescent stage.

Passive stretching.—In passive stretching, the doctor produces a tension on the skin, muscles, ligaments and joints in the affected area. The patient is asked to assist by completely relaxing and is turned in such a position that the body acts as a counterpoise.

Muscle spasm, adhesions or contractures caused by sprains or strains from injury, especially if recent, can often be relieved by this method. It is a form of treatment valuable in a department employing the various types of exercises and massage as an aid in the rehabilitation program. The following case demonstrates the success of the maneuver:

J. J. N., aged twenty-nine years, was sent into the department May 3, 1944 from the Orthopedic Service with the diagnosis, "sprain, left lumbar area". The patient stated that he had had pain in left lower back for five weeks. He knew of no cause for the soreness. He awoke one morning and it was there. On examination he showed restriction of lower back mobility on flexion. Previous treatment, which had consisted of rest on boards, the use of liniments and light duty work, produced no alleviation of his symptoms.

He was given gentle passive stretching to the left lumbar area. After one treatment he was markedly improved and two days later was up and about. He had no complaints and after two more treatments asked to

go back to duty. One treatment by passive stretching had relieved pain and disability which had existed for five weeks.

Two additional cases are presented. They demonstrate the employment, not only of resistive exercises and passive stretching, but the combination of treatment that those suffering from combat wounds are given in a physical therapy department.

CASE I.—M. G. M. a CMM., U.S. Navy. On October 26, 1942, in the Battle of Santa Cruz, the ship was struck by a torpedo. While doctors were taking care of others more seriously injured, the patient made a splint of an orange crate and some rags and applied it to his leg. This enabled him to get off the ship before she sank.

In February 1943, x ray examination showed an old fracture of the patella with considerable loss of bone substance. Wire loops were in place and a moderate amount of general demineralization was present. A diagnosis of simple fracture of the right patella was made.

Physical therapy was started on February 23th, which consisted of: whirlpool bath at 102° F., for thirty minutes daily; massage (kneading and friction); passive stretching; resistive exercises; occupational therapy (bicycle saw) from twenty minutes to one hour and twenty minutes daily.

This treatment resulted in an increased range of motion in flexion of the knee, from 155 degrees to 85 degrees (normal, 180 to 45 degrees), a gain of 70 degrees. There was also an increase in thigh circumference of three inches. The patient was discharged to shore duty after almost ninety days of treatment.

CASE II.—J. M. was struck by shell fragments on September 5, 1942, while in an engagement with enemy cruisers off the Solomon Islands. He was unconscious for a few minutes. On awakening he saw the ship sinking so crawled to the side and dropped into the water. After floating for about an hour with the aid of a life preserver, he climbed aboard a raft. Almost eight hours later, he was picked up by a landing boat from the Solomons and taken aboard a U.S. cargo vessel.

X ray examination on December 28, 1942, showed the presence of an extensively comminuted fracture of the head, neck and upper third of the left humerus with considerable loss of bone. Numerous radiolucent areas were seen, compatible with low grade infection. The diagnosis was: left shoulder shows presence of an extensively comminuted fracture of head, neck and upper third of humerus with considerable loss of bone.

Physical therapy was started on June 23, 1943, and consisted of infrared radiation, thirty minutes daily; slow sinusoidal stimulation to abductors of left shoulder; passive stretching of axillary contractures, forced flexion, supination, and pronation of forearm; resistive exercises.

At first there was complete loss of deltoid and biceps muscle power; he was unable to abduct the shoulder. He originally could flex his elbow so that his hand could only be placed on the ensiform cartilage. After treatment he could raise his hand to his chin and lower face, and extend the left elbow. The indurated deltoid had softened and the muscle showed tone and power. The patient is now able to abduct his left arm 55°. He needed over sixty days of treatment to realize the above results.

Modern Tendency Toward Early Motion

The use of resistive exercises and passive stretching fit in with the modern tendency towards early motion and activity. The inclination is evidenced in the management of the following conditions:

- a. The use of the Stader or similar splint for extremity fractures.
- b. The early mobilization or the complete lack of immobilization in many elbow and shoulder fractures.
- c. The use of the Kenny treatment in early poliomyelitis.
- d. Early exercises for sprains or amputations of the extremities.
- e. Cerebral concussion patients who had always been kept in bed for ten days after injury are being allowed to assume the vertical stance after one or two days.
- f. Postoperative abdominal cases are, in many instances, given early ambulatory privileges.
- g. After operation or injury to the knee, with resulting inactivity, early exercises are instituted to combat "quadriceps deficiency".
- h. Early motion after fractures of transverse processes of vertebrae.

Summary

1. At the annual meeting of the Association of Military Surgeons in Philadelphia in October 1943, four exhibitors demonstrated the importance of the work being done in physical therapy and rehabilitation.
2. At the same meeting, the newer equipment employed in a department of physical therapy at a United States Naval Hospital has been described and its uses with respect to rehabilitation noted.
3. Refrigeration and mild shock therapy should be included in the activities of a physical therapy department.
4. The application of general fever therapy for short periods, at lower than the usual temperatures, in certain cases of arthritis, bronchial asthma, and sinusitis is worthy of trial.

5. Artificial ultraviolet irradiation, employed for the protection of solar sensitive individuals, is suggested.

6. The use of sodium penicillin, by common ion transfer, in iritis, is considered worthy of further investigation.

7. The removal of sebaceous cysts by the electric current has been successful in some cases.

8. A few cases, in which the patients suffered from military wounds, are described.

9. An outline of the treatment administered and the results obtained by the use of physical therapy methods, including resistive exercises and passive stretching, is introduced.

"Every new method must have its value tested, its limitations defined and its technique developed before it can receive an established status. The obstacles to investigation heretofore, together with the existing military emergency, furnish the reasons for presenting this method before these requirements have been fulfilled. A broad statement of theories has seemed desirable in order to stimulate investigation by those who have opportunities, even though one result of such work will doubtless be to destroy some parts of the speculative structure."—Frederick M. Allen, M.D.

More detailed research in the employment of newer units and methods is needed. Evidence, however, points to the usefulness of the above mentioned means, both for the relief of pain and as an aid in removing the causes or effects of disease and disability.

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THE EFFECTS OF TEA AND COFFEE

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The use of caffeine containing beverages is widespread throughout the world. Arabians use coffee, the Chinese, tea; cocoa is drunk in Lo Amen, and kola nut in Central Africa. The Brazilians use guarana and the Argentinians, maté (mah-tay) or Paraguay tea (1). These drinks are all related, but not in taste. They are rather alike in that they contain caffeine or a related substance and because of this, all produce temporary stimulation and relief from headache or drowsiness. Herein lies the explanation of their popularity which is not a medical mystery as suggested by Leonard B. Williams.

Coffee came originally from Arabia and its use is mentioned in the earliest records. The Mohammedan found that it enabled him to pass the night in prayer with greater zeal and attention; later the Koran for-

bade its use because it was thought intoxicating. For a time coffee was forbidden by the Arabian government, but because of its universal use it became necessary to restore it to the people with an added payment of toll. Finally, it became so popular that refusing to supply a wife with coffee was sufficient ground for divorce.

Tea was probably first used in China, since there are accounts written by visitors to that land in 850, describing the use of a medicinal beverage named "Chah" or "Fah" (2), prepared by infusion and said to be an efficacious remedy in various diseases. The reason the drinkers of the beverage seemed to avoid disease in these countries was that the boiling process made it possible to use without much danger the contaminated water so often found.

There is a legend that tea was introduced to the Chinese by a missionary from India who had vowed to worship Buddha for nine sleepless years. Toward the last few years, when he was growing very sleepy, he chanced to chew some leaves from a tea vine near by. Immediately he revived and finished successfully his long period of devotion.

In Europe, the general use of tea and coffee as beverages dates from the seventeenth century, although as early as 1591 Prosper Alpinus (3) wrote a description of the coffee plant in a history of Egyptian plants, which was published in Venice. Samuel Pepys wrote in his *Diary* in 1666, "I did send for a cup of tea, a China drink, of which I never had drunk before." Coffee was served to the public in England and on the continent in coffee houses which became famous as gathering places for literary men, actors and artists. Our word "café" is the brief form of coffee house. In the year 1660, a duty of four pence was laid on every gallon of coffee. In Paris, about 1670, Solomon Aga, ambassador of Sultan Mahomet the Fourth, introduced this drink to a great many persons. In the early history of our country we remember the story of angry Americans dumping tea into the Boston harbor.

Maté (4) is drunk by some ten million persons in South America. It is a tea made from the leaves of a wild plant called yerba maté, the leaves resembling those of the holly tree to which the herb is related. Early in the sixteenth century, Juan Diaz de Solis, a Spanish navigator who explored the Rio de la Plata, reported that the Indians of Paraguay were using this drink for relief from fatigue.

The world's annual consumption of tea amounts to about nine hundred million pounds a year. It is interesting to note that in 1927, Great Britain and Ireland consumed more tea than all the other countries in the world put together, their per capita consumption for that year being 9.4 pounds (with 0.84 pound for Americans). In 1939 imports of tea in the United States amounted to 97,791,000 pounds, twenty-five percent of which came from Japan, and twenty percent from the Netherland East Indies (4).

In 1938 (4), the United States' coffee import of 1,987,127,018 pounds was larger than the import of any other commodity; in 1939 rubber held first place. Two thirds of the nearly two billion pounds of coffee came from Brazil. Our annual average per capita net imports in the five-year period 1935-1939 was calculated at 14.13 pounds.

Producing the same results as coffee, but to a lesser degree (5), caffeine stimulates a craving, according to Ralph H. Cheney, which is satisfied to the full only by alcohol (1) and allied narcotics. Caffeine is found in *Coffea arabica* to the extent of one percent; in *Thea (tea) sinensis*, one and five-tenths percent; *Paullinia cupana* (Brazilian cocoa), four percent; *Cola acuminata*, two percent; *Ilex paraguayensis*, one percent. Commercial caffeine is regularly made from damaged tea for economic reasons.

According to various authorities, following the use of tea or coffee there is an increase in respiration (6), body temperature, muscular action and the secretion of urine (7). Caffeine stimulates the entire nervous system (central and vascular centers) by the excitation of the psychomotor area in the cerebral center. In tests performed, it temporarily increased memory span

and rate of adding, while the end results of habitual use showed a decrease in body efficiency, despite the fact that there was very noticeable immediate stimulation (2). De Vaele found that the metabolic rate was raised six and five-tenths percent, but his results concerned the immediate effect rather than that of the continued use.

To show the chronic effects of tea and coffee on the average individual, an unselected series of patients encountered in routine practice was studied. The patients were separated into two groups for comparison: Users and nonusers of tea and coffee, those who used tea and coffee in any amount being classified as users.

Conclusions

The conclusions from the following figures have been subjected to standard statistical analysis by appropriate formulas, and are not due to errors in random sampling.

Blood pressure observations were made on ten thousand consecutive office patients. There were 9,640 users and 360 nonusers of tea and coffee. The average systolic blood pressure for 6,459 women users was 128.92, and for the 241 nonusers it was 119.84. The men users the systolic pressure was 136.9, and for the nonusers, 124.9.

In comparing diastolic blood pressures, there was found a corresponding elevation. The women users averaged 86.73, the nonusers, 81.46; the men users averaged 85.4, and the nonusers 82.59.

To determine the effect of tea and coffee on growth and weight, an unselected series of two thousand consecutive patients, weighed and measured for basal metabolic rate, was used. Of this group, 132 were nonusers and 1,868 were users of tea and coffee. Their average weights were, respectively, 144.2 and 137.6 pounds.

In the same group, the metabolic rate obtained averaged -3.00 percent, in the users and the nonusers' rate was -0.205 percent.

Of 3,258 electrocardiographic records, 42 represented nonusers, and 2,970 users of tea and coffee. Their cardiac rate compared respectively: 81.5 and 79.03.

From these figures, a definite tendency towards hypertension with decreased heart rate is noted among habitual users of tea and coffee. The metabolic rate was lowered over two percent and the weight is found to be approximately six pounds less in users than in nonusers.

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ON THE COMPARATIVE PATHOLOGICAL PHYSIOLOGY OF ATROPHIC RHINITIS: NASAL BLOCKAGE IN PIGEONS*

A Preliminary Report

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(Continued from page 98)

Discussion

From the evidence presented, certain points of likeness stand out between what is known as atrophic rhinitis and the hair dystrophy which has been observed with it, when compared with the experimental nasal blockage in pigeons, which was accompanied by the shedding of the birds' plumage.

The condition in pigeons appears to be essentially a lowering of body temperature, due to necessary mouth breathing. Since it is well known that birds normally breathe through the mouth in hot weather to lower body temperature, constant mouth-breathing at moderate degrees of cold would bring about abnormal heat reduction in the birds. This would of necessity be in an extreme degree, since inspired air in pigeons penetrates the viscera, muscles and bones, as already considered.

This condition is analogous to that in man, in atrophic rhinitis, where the normal nasal mucosa, which moistens and heats the inspired air, has been changed to squamous epithelium, similar to that in the oral cavity. The end result is in effect, physiologically similar to mouth-breathing.

In terms of the blood findings recorded for the pigeons, the only suggestion expressed by the data is that of a slight relative decrease in polymorphonuclear cells, following the nasal blockage. Since no total white cell counts are available here, it is not possible to determine whether there was also a resulting degree of leucopenia.

In considering these averages, it must be emphasized that there was no uniformity between the individual birds in the blood findings recorded. In all phases, some of the counts increased and others decreased or remained the same after the experiment as compared to those made before. For this reason the observations here are presented with the idea that they may be used by other investigators.

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1332 NORTH FRANKLIN STREET

Schönlein's disease.—Skoda's treatise on percussion and auscultation was published the same year that purpura rheumatica was described by Johann Lucas Schönlein, and is called Schönlein's disease. Schönlein was born in Germany in 1793, and was the first to lecture in German instead of Latin. He discovered the achorion Schönleini, the parasite which causes favus, and described his discovery in a communication only twenty lines long in Müller's *Archiv*. The achorion was independently described by David Gruby in 1841. Schönlein died in 1864.

*From the services of Dr. George M. Coates, Graduate School of Medicine, University of Pennsylvania; and Dr. David Husek, Mt. Sinai Hospital, Philadelphia, Pa. Microscopic studies by Col. J. E. Ash, Medical Corps, U.S.A., curator, Army Medical Museum, Washington, D.C.

Symposium on Malignancy

SURGERY OF UTERINE CANCER*

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Efforts to solve the cancer problem began many centuries ago and ever since have continued with increasing tempo. But progress has been slow despite the fact that in each generation ceaseless workers have sought to discover the cause, to prevent, and to cure the disease. Each agent or method in its initial velocity and intensity of great claims, had many advocates, but disillusionment came, the methods and the hopes were discarded together—and the profession and the public awaited the next “sure cure”.

We must not lose sight of the fact that the early writers used the term cancer to include a number of conditions that later were found to have nothing in common with the disease. Even in the seventeenth century elephantiasis and cancer were still prevalently considered under one head. It was only in 1644 that leprosy was finally separated from cancer. During the past 170 years, medical literature shows that great progress has been made in separating from what was called cancer such diseases as blastomycosis, tuberculosis, actinomycosis, syphilis, and more recently, Hodgkin's disease. Therefore the cancer of the ancients and of those more nearly our contemporaries was different from the cancer of today. How different will be the cancer of tomorrow?

I believe that what we call cancer today is still of multiplex pathology and that as further division gradually takes place, the actual malignancy remaining may be less difficult to solve as to etiology and treatment than appears at present. A great handicap to progress is the failure to realize that there is not one cause nor one cure.

As organizer and secretary of the Research Department of the New York Skin and Cancer Hospital for twelve years—until the first World War resulted in the dissolution of the Department—it was my privilege to play an active part in the testing of many so-called cancer cures. It was not so long ago that the Beard enzyme treatment, Coley's fluid, Hodenpyl's serum, the micrococcus neoformans serum of Doyen, claimed the world's attention; all these were tested. De Keating-Hart came from France to demonstrate his method of fulguration, using his own apparatus, imported for the purpose. The desiccation of Clark, diathermy of Nagelschmidt, electrocoagulation and bipolar voltaization of Doyen were tested. Prof. Russ of the Cancer Research Laboratories of the Middlesex Hospital, London, came at our invitation to the United States and we tried his immunity method for irremovable cancer (mincing the part of the growth removed, treating it with radiation, and then injecting it into the host).

Largely based on the work of d'Arsonval, the use of electricity came to the fore. We have the cauterization of Byrne, the electrocoagulation of Doyen already mentioned, and the actual cautery of Percy.

With the advent of radium there were great hopes that the entire cancer problem was solved. Enthusiastic advocates claimed that this powerful agent had selective action and would ferret out the cancer cells and destroy them; thus surgery was outmoded. The scientific world marveled at the discovery of this magic element. But the years have shown that the cancer problem is not solved, experience has dimmed our faith, hope has turned to skepticism, and skepticism is slowly giving way to despair in many centers where radium has proved to be “the light that failed”, as have so many other lauded agents or methods through the years. Radiation has not solved the problem, but has seemed to have a proved place in the treatment of certain superficial epitheliomas, angiomas, rodent ulcers, and in the judgment of many, in cancer of the cervix uteri. It is my opinion that radium is but another cauterant and there is no selective reaction of the tissues to it. If it is the desire of the surgeon or patient that radiation be utilized after surgical procedure for cancer of the uterus, unfortunate consequences must be considered as possibilities in the form of ureteral obstruction, intestinal obstruction, intrapelvic adhesions, serious injuries to the bladder or rectum, or both. And the toxic reaction to this form of treatment is sometimes more terrible than the cancer itself. A leading English authority recently stated that the world would be little worse off if all the radium buried in deep holes at present to secure it from bombing, remained forgotten! Between this extreme pessimism and the extravagant views still held by some, the truth doubtless will prevail and eventually give this agent its place. We must persist in seeking other means of solving the cancer problem, and in the meantime continue the use of surgery.

If we bear in mind that the best treatment for cancer is preventive, that during labor trauma to the cervix should be minimized as far as possible, that lacerations following childbirth should be repaired, that all existing infections should be cleared up by proper prophylaxis, that erosions, irritated areas, and ulcerations should be eliminated, we would have a great decrease in the number of cases of malignancy in this region. Eversion of the mucous membrane of the cervix from its naturally alkaline secretion into the normally acid secretion of the vagina invites inflammation and organic change by altering the environment of the cells. Relief of such condition is most important.

During many years, ample opportunity has been afforded to follow-up operative cases. In a series of

*Read at the fifty-sixth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., September 7, 8, and 9, 1944.

twenty-five of ulceration and erosion of the cervix, but without much scar tissue, we destroyed the mucous membrane at the outlet of the cervix and well into it, besides the diseased area, with heat or chemical agent. In none of these cases, under observation over five years, did cancer develop.

In another series of twenty-five cases where considerable scar tissue was present in addition to the ulceration and erosion of the cervix, the scar tissue was removed, trachelorrhaphy was performed, and the mucous membrane of the cervical canal was placed in its proper alkaline habitat, away from the acid of the vagina. The pathological report on all of these cases was negative for malignancy. A careful follow-up for over five years showed that none developed cancer except one, in which advanced malignancy of the body of the cervix occurred within a year. Probably in this case cancer was present in the tissue sent to the pathologist and the condition escaped detection.

In both these series, if radiation had been applied without biopsy, the statistics of so-called radium cancer cures, might easily have been materially augmented.

In the treatment of cancer, surgery, including electro-surgery, has stood the test of time. In cancer of the fundus of the uterus, I believe that adequate, careful surgery is the ultimate in treatment to date. Here as at other sites, the avenues of extension must be carefully considered. As I have often emphasized, a neoplasm should never be incised for diagnostic purposes without proper precautions, for one cannot tell at what split moment the cancer cells may be disseminated. When I am in doubt as to diagnosis and consider a biopsy important, I remove the entire mass when feasible, cutting into healthy tissue, and instantly apply the electric cautery to prevent any possible spread of the cells. If the growth is cut into, immediately sear the cut surfaces by cautery or chemical to block off the avenues of extension. In some instances, when malignancy has developed we have to block off the areas that have been invaded by the cancer cells. In such cases finesse in surgical technic is of the essence.

Even in the seemingly hopeless, inoperable cases of uterine cancer, surgery often has been of marked benefit. We cannot always remove the growth but there are other procedures to help the patient and ameliorate suffering. Often a marked inflammatory condition may coexist or a toxemia that can be relieved, or certain other complications that may cause as much pain and discomfort to the patient as the cancer itself. Some years ago, I read, before this society, a paper on the interrelationship of surgical conditions of the pelvic and abdominal viscera, in which I presented a number of case histories, many with illustrations, demonstrating that in innumerable instances of uterine pathology there were intestinal and upper abdominal conditions demanding surgical attention. In some cases the cancer of the cervix and the uterus had not extended very far and yet, along the large vessels, there were malignant glands that were as important to remove as the diseased organs. A complicating condition may cause the malignant process to seem so extensive as to be inoperable, yet when discovered and surgically relieved, the residuum—the cancer—may be coped with successfully. It is for these reasons that I believe the preferred use of the abdominal route is warranted and necessary, rather than the vaginal. I reserve vaginal

hysterectomy for the aged where there is prolapsus, or when the general condition of the patient is in doubt.

In cases of cancer of the cervix with involvement of the body of the uterus, it has been my custom in recent years to cauterize the cervix with an electric cautery immediately prior to proceeding with the abdominal hysterectomy, so that the cervix is practically completely amputated.

In all cases of cancer of the fundus of the uterus, I believe it is a hazard, the effects of which should not be minimized, to postpone operation in an attempt to treat first with x rays or radium. Radical operation should never be delayed in order to try other means; if these other means must be tried they should be resorted to only after thorough adequate surgery has had its chance. Then any other means can be used as adjuvants. It is important of course, to have the case put in the best possible general condition, thus making the patient safe for the surgery as we have endeavored through the years to make surgery safe for the patient. One cannot repeat too often the need for careful surgery that does not traumatize the parts, or through rough handling spread the disease. Although cancer cannot be transplanted from man to man, it can be transplanted in the same host, and examiner and operator must exert every precaution to uphold Nature's barriers and not to disseminate the disease. There are those who say that surgery has reached its limit, that it has done all it ever will be able to do. Perhaps. It may be that surgery cannot offer more for cases of advanced cancer of the uterus with relation to types of operation, but there is much still to be learned and practiced in technic and finesse of detail. The advent of the sulfa drugs, with the use of sulfadiazine before and after operation, and the intraabdominal employment of sulfanilamide, has proved a great safeguard in suitable cases, and lessened mortality.

In advanced cancer of the uterus, I have used my method of starvation ligature and lymphatic block employing it as an immediate preliminary even in those cases in which I performed the Wertheim operation. Ligation shrinks the growth and removal of the glands blocks extension. This procedure has also been utilized in less advanced cases with satisfactory results. Arterial ligation has been employed for about eighteen hundred years for various conditions, mainly in the early days for controlling hemorrhage and treating aneurysm, later for controlling the growth of tumors, and then in logical sequence for the treatment of irremovable pelvic cancer. My amplified method of the additional safeguard of lymphatic block to prevent as far as possible the extension of the disease through the lymphatics, which I began to employ about thirty years ago, had not been previously tried. It is gratifying to note that since I introduced this, others have made it a routine practice in operating for cancer in the pelvis, to remove all the glands along the large vessels.

Essential Purposes of the Combined Procedure

1. To diminish the blood supply to the area of cancerous involvement by the ligation of the internal iliacs, the ovarians, and the sacra media, thus causing an anemia and shrinkage of the parts.
2. To shut off the avenues of absorption of cancer cells and toxic material by removing the lymphatic glands and closing the vessels.

3. To place what seems to be an inoperable condition in the field of the operable, if possible.

4. To remove ovaries and parovarians, according to Beatson's theory of the effect of the hormones on the rapidity of growth of the neoplasm.

5. To alleviate conditions to such a degree as to enable the employment of adjuvants, with more chance of benefit.

My method of procedure is to ligate the ovarian artery just above the brim of the pelvis and also tie off the upper part of the broad ligament, with the Fallopian tube. The ovary, tube, and upper part of the broad ligament, including the parovarian tissue are excised. The internal iliac artery is then carefully separated from its vein. With a heavy clamp, the artery close to the bifurcation is crushed in two places and a permanent ligature is tightly tied at the crushed sites, one-half inch apart. If it can be done without cutting into cancerous tissue, the uterine and obturator arteries may then be ligated. This procedure is carried out on each side. If large enough to warrant it, the sacra media may be tied. In order to effect lymphatic block, the glands along the iliacs are removed en masse, if possible, from the receptaculum chyli above to the obturator foramina below. Thus all glands situated in and around the obturator foramina and in the pelvis are removed. Lymphatic block may be performed before or after the starvation ligature procedure. The crushing of the arteries and the use of permanent ligature material are necessary to secure adequate occlusion.

In very advanced cases the operation is performed principally to save suffering and to stop hemorrhage. The question of the prolongation of life need not be the prime objective but more, to give reasonable comfort to the patient. However, in a number of cases amazing results have been obtained from the standpoint of longevity and the cessation of symptoms.

In this paper, I am limiting myself to some of the results obtained in private practice, where I have been able to follow the cases most successfully. In previous papers I reported a series of fifty and then of fifty-five cases in which my operation of starvation ligature and lymphatic block was attended with satisfactory results, barring five patients who died within two to ten days. In this present survey I have now reached sixty-two additional cases, confirmed by pathological study. Because some of these cases were in such an advanced stage of the malignant disease, I operated against my better judgment on the pleading of members of the family who desired to give the patient every possible chance for the relief of suffering which was most distressing. It was gratifying that there was no operative mortality among these, and that in a number what had been an irremovable cancer was brought into the realm of the operable and curable. No treatment other than surgery was employed in these sixty-two very advanced cases, in which eighteen patients (29.03%) lived six years and over:

One lived six years; one lived seven years; two lived eight years; one lived ten years; one lived eleven years; two lived twelve years; one lived thirteen years; four lived fifteen years; one lived twenty-one years; one lived twenty-two years; one lived twenty-five years; one lived thirty years; one lived thirty-three years.

Of this group eleven patients are still living and apparently are perfectly well (one celebrated her fiftieth

wedding anniversary three years ago and another married a short time after the operation); five have been lost track of; two are dead, one of cancer of the liver and stomach without local recurrence, and the other of diabetes and cardiovascular disease, without any further apparent pelvic pathology. Two of these eighteen cases (the twenty-five and thirty year cures) had been considered inoperable.

Conclusions

1. The first important treatment for cancer is preventive.

2. A minimum of trauma to the cervix at childbirth, the prompt repair of lacerations, erosions, ulcerations, and areas of irritation, with the prophylactic care of any existing infections, would result in a lowered cancer rate in this region.

3. The acid bath of epithelial cells may be just the irritation needed to activate a malignant process in the cervix if its mucous membrane is everted from its normally alkaline secretion to the naturally acid secretion of the vagina. Repair of such abnormality is imperative.

4. Rough handling by the examiner or operator may spread cancer cells.

5. The one treatment for cancer of the uterus that has stood the test of time is surgery.

6. Such surgery must be adequate and careful with due regard for the avenues of extension. Finesse of detail is vital.

7. Radiation or other means should be used only as adjuvants following surgery and never in place of surgery except in utterly hopeless cases.

8. The presence of other conditions in the abdomen when relieved by surgery, has proved seemingly inoperable uterine cancer to be within the realm of the operable and curable.

9. For the foregoing reason, and because malignant glands that may be present along the large vessels must be removed, the continued use of the abdominal route appears to be preferable to the vaginal route, except in certain limited instances.

10. The writer's operation of starvation ligature and lymphatic block has proved of great value in cases of advanced, apparently irremovable cancer of the uterus, as well as in less advanced cases, and has resulted to date in some cures up to thirty-three years.

Discussion

In closing his discussion, Dr. Bainbridge said:

You will realize that my operation for starvation ligature and lymphatic block for advanced cancer of the uterus is utilized in cases in which it seems impossible to remove the growth. In my article, I discussed radium. I did not take up deep x ray therapy; that is an entirely different field.

A few hours ago I received a communication from Dr. J. M. Kennedy, Philadelphia, one of the active Fellows of this association, who has taken a strong position with regard to the subject of the treatment of uterine carcinoma. I called him on the telephone and asked if I could use it in closing the discussion of my paper. He replied that he would be not only very glad but had hoped I would do so. I now give it to you:

"You know in the past generation surgical treatment for uterine malignancy has been tabooed or practically

so at any rate. Eight years ago a prominent teacher of gynecology, known to us all, said that I should be in the penitentiary for advocating hysterectomy for cervical malignancy. However, the penitentiary might be a peaceful home in these troubled hours.

"I have not had your valuable experience in lymphatic block and arterial ligation for advanced abdominal malignancy. There is no doubt but that these hopeless cases might be made more comfortable by the procedure you advocate and it is cheering indeed to have you report victories in these late cases.

"You liken the function of radium to that of the cautery; with this statement I am much in accord. I have never seen as destructive results from the use of the cautery as that from the use of radium. I have never been able to credit an intellectual, cellular, selective therapeutic function in the use of radium, in so far that the pathological cells are executed and the normal cells remain unpunished. It should be remembered that the reactions and postoperative complications must be subtracted from the primary usefulness of any therapeutic measure.

"I was pleased to see your reference to the absence of cervical malignancy following proper repair of the cervix or the intelligent use of the cautery. The late Joseph Price, in his last remarks before our association, said that during his entire surgical experience covering many hundreds of cervical repairs, he had never seen malignancy follow proper repair of the cervix. May I add my life's experience of over forty years in which I have never seen malignancy of the cervix following our repairs.

"Do you not know that the repair of the cervix today is almost a lost art? In the surgical treatment of malignancy of the uterus, I am influenced entirely as to whether or not the malignancy is truly uterine or extrauterine; if uterine, we perform vaginal hysterectomy clamp method, preceded by radical cauterization of the cervix. If the condition is extrauterine in its extension, then of course we open the abdomen and advocate much the same procedure as Doctor Meigs is popularizing. It is my opinion that Dr. Meigs does a more thorough abdominal procedure than I.

"I am grateful to you for having taken up the cudgel in advocating surgical treatment of uterine malignancy. Today uterine malignancy is the one condition in the broad field of gynecology which stands out in bold relief and challenges us to better thinking and better execution. We never treat uterine malignancy, we always remove the uterus.

"What are some of the paradoxes which point an incriminating finger to the accepted treatment of uterine malignancy? There is no location of malignancy in either male or female where prevention can be practiced in such a pleasing life-saving percentage of cases as that of cervical malignancy. This is a challenge to the therapy of the hour, as such practice will prevent over ninety percent of uterine malignancies. There is no organ in the anatomy which can be removed with such brilliant results as that of the uterus.

"Uterine malignancy in a sense has been merciful, as in fully ninety-nine percent of the patients from whom we have removed the uterus for malignancy or potential malignancy, the organ has been sterile. There is no glandular organ in the female where malignancy

can be recognized in such a great percent of cases at an hour when surgery gives such excellent results. So, when we contrast these privileges with the results, I know of no greater example of a therapeutic anachronism in the therapy of medicine or surgery than that seen in the accepted treatment of uterine malignancy at this hour.

"The entire question of uterine malignancy must be discussed from the broad sense of relative values which involve factors of safety. What is the worth of the uterus? What is the cost (morbidity and mortality) of removal of the organ? What is the percent of accuracies in the diagnosis of uterine malignancy, the organ remaining?

"It costs but a fraction of one percent to remove the organ; can we be correct in our diagnosis of uterine malignancy in ninety-nine percent of the cases by physical signs, clinical history or biopsy? The worth of the uterus is valued for its fertility; we have stated that over ninety-nine percent of the patients operated on for uterine malignancy were sterile. Unfortunately the abilities of men are in the balance in all therapeutic fields and are most influential in the surgical treatment of malignancy.

"I should like to have said something about that technique of hysterectomy which would permit a more or less common adoption and from its simplicity would be often adopted from the viewpoint of prevention of malignancy as a prophylactic measure. This would have led me into a discussion of the clamp method of vaginal hysterectomy, which has the lowest mortality, the broadest field of usefulness of any operation of pelvic surgery and the best postoperative history of any major operation to my knowledge. We feel it is today the solution to early uterine malignancy. Given a glandular organ which permits removal, the last word said in the treatment of malignancy of such organ, will not be irradiation, but will be surgery."

Schistosomiasis

Exotic maladies may be brought home by troops returning from endemic areas, and among them is schistosomiasis, a tropical and subtropical disease caused by three species of trematode or fluke parasites. Never before has the exposure of our troops been so great, and it will be intensified if our forces invade the mainlands of China and Japan, says the *Military Surgeon*.

Before our entrance into the war, little work had been done to ascertain whether species of snails found in the continental United States were capable of acting as intermediate hosts for the parasites. It had been assumed that the disease was introduced from Africa during slave trading days, but it did not become established here. Since the distribution of imported slaves was confined to a relatively narrow corridor along the Atlantic and Gulf Coasts, failure of the disease to become established in this area was no indication that suitable intermediate snail hosts did not exist elsewhere in the United States.

Tests are now being carried out in the Zoology Laboratory of the National Institute of Health to determine whether there are any suitable hosts among our domestic snails. Infections are being maintained in 144 colonies of snails in the laboratory. In all cases, it has been impossible to infect any of the snails with the parasites.

IMPORTANT FACTORS IN THE PROGNOSIS AND TREATMENT OF THE PATIENT WITH MALIGNANT DISEASE

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1. *Early diagnosis.*—There is no longer any question about the prime importance of early diagnosis and the adoption of the proper course of treatment in the management of an individual afflicted with cancer or any of the allied conditions. Public education and propaganda commencing with school education and information imparted to the public at large, to recognize the importance of early signs and symptoms, should be of considerable aid towards early recognition. There should be an immediate consultation with the family physician and in case of a doubtful diagnosis the assistance of one qualified and trained as a cancer specialist. Periodic health examinations are also of considerable value in the early detection of disease.

2. *Site and extent of growth.*—The organ and nature of the tissues involved in the neoplasia are of utmost importance. Prognosis is better where only superficial tissues, as skin are involved localized to a small sized area, than when muscle, bone, cartilage or involving organs, with greater area, are affected. Also of importance is the nature of the organ involved, whether destruction or removal of such would interfere with the vital functions. For example, the outlook for malignant disease of the oesophagus is much worse or almost hopeless, whereas for carcinoma of the breast per se would be much more hopeful.

3. *The presence or absence of glandular involvement and distant metastasis.*—Where the neoplasia has not yet invaded the adjacent lymph glands or spread to metastases in distant parts of the body, the immediate outlook is much more encouraging than when the reverse occurs.

4. *Fixation of growth.*—Where the growth is immovable and fixed to the underlying and deeper structures, the prognosis is usually not so favorable, and usually contraindicates any immediate surgical procedure.

5. *Location.*—Involvements by new growth of superficial tissues or easily accessible organs, where they produce earlier signs and symptoms, and earlier diagnosis, have a better prognosis. The greater the diagnostic and therapeutic accessibility of a growth, the earlier its signs and symptoms, and more favorable the prognosis.

6. *Renal and cardiac efficiency.*—In patients with deficient function of heart or kidneys or both, the prognosis is apt to be worse than when they are efficient.

7. *Anemia.*—The greater the anemia, the greater the risk of any therapeutic procedure, whether curative or palliative, and the shorter the duration of the condition.

8. *Size of the growth.*—The larger the primary growth, the greater the possibility of glandular involvement or other metastases, and hence the worse the prognosis.

9. *Age.*—In young persons, malignant neoplasms are usually more rapidly fatal than in older individuals.

10. *Direction of growth.*—This is a factor of importance in prognosis, in respect to whether the neoplasm extends along the lumen or surface of the organ,

or whether it is infiltrating the wall and growing toward adjacent organs or vital cavities, as the peritoneal cavity in intestinal carcinoma, or the thoracic cavity in carcinoma of the breast.

11. *Loss of weight.*—In instances where surgical procedures are being contemplated, individuals who are underweight are usually better surgical risks than those who are overweight. Whereas, in patients in whom radiation therapy is being considered, it is probably a better, more favorable factor, to have some excess or normal weight, rather than underweight.

12. *Duration of disease.*—The length of time the neoplasia is known to exist is of value, when considered in conjunction with other factors, in determining a prognosis.

13. *Pathology and microscopic study.*—It is of considerable aid to have a pathological examination, as a biopsy, to determine the grade of the malignancy present. Such report depends upon: (a) cellular differentiation, (b) lymphocytic infiltration, (c) mitoses, (d) fibrosis, (e) hyalinization. An examination by a competent pathologist, who will report on whether the neoplasm indicates radiosensitivity or radioresistance, is of considerable value in prognosis and in determining the therapeutic measures to be instituted.

Treatment of Patient

14. *Therapy:* The various therapeutic measures of value in the management of a patient afflicted with malignant disease or any of the allied conditions, although usually not curative, are in most instances palliative. They may be classified into three groups: surgical, radiotherapeutic, and medical.

Surgical.—(a) radical, where the object is an attempt to cure; (a) palliative, where the aim is to cause an alleviation of symptoms and prolongation of life in comfort.

Radiotherapeutic.—The use of various methods of irradiation with high voltage roentgen rays and radium: (a) curative, in some instances; (b) palliative, in the majority of patients.

Medical.—In this group are the problems such as diet, hygiene, the use of medicinal preparations as tonics, vitamins, calcium, glandular products, symptomatic drugs for the relief of pain, transfusions, and the necessary treatment of any associated conditions or complications. In many instances it may be necessary to use one or two or even all three groups of therapeutic measures in combination to obtain a satisfactory result.

The best results in the management of a patient with cancer or any of the allied conditions can only be obtained by the proper cooperation between the family physician, the surgeon, various specialists and the radiation therapist.

After the necessary consultations and a study of the various factors mentioned under prognosis, each patient must be individualized and a plan of procedure adopted to include the proper therapeutic measures, whether surgical, medical, or radiation alone, or a com-

bination of all if necessary, depending upon whether there is a hope for cure or only for palliation. There is no specific cure for all types of malignant disease.

In some cases, where a diagnosis is made early and is operable, with no contraindications for surgery, such as cardiorenal disease, it is possible to obtain a cure by radical surgery alone. However, in the majority of cases radical surgery may not be indicated, but palliative surgical procedures, such as local removal, tracheotomy, gastrostomy or colostomy, may give temporary relief.

It is unwise for the medical profession and the lay public to take a hopeless attitude towards patients suffering from malignant disease. Although cures are ac-

complished in only a small percentage of cases, alleviation of symptoms and prolongation of life can be obtained in many. Our aim should be the treatment of the patient with malignant disease with the aid of all the therapeutic measures at our command in order to obtain any possible improvement, and not focus our attention on the cancer *per se*.

In conclusion, it is evident that the best results can only be obtained by the proper cooperation and education of the lay public, with periodic health examinations, and frequent consultations between the various specialists of the medical profession.

295 CENTRAL PARK WEST

CARCINOMA OF RECTUM AND ANUS*

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The true rectum lies between the levator ani muscle and the third sacral vertebra, derived from the cloaca which is a highly differentiated part from the hindgut and has five sources of blood supply, all accompanied by lymphatics. The superior rectal and middle hemorrhoidal arteries contribute the main blood supply. The rectum proper has no mesentery and only a small part of its anterior surface is covered by the peritoneum; it lies between the genitourinary organs and the sacrococcygeal.

The type of cancer found in the rectum is adenocarcinoma. The first portion of the rectum is the terminal part of the sigmoid derived from the hindgut. Growths in this location are covered by the peritoneum ventrally. Only twenty-four percent of the rectal carcinomas lie below the peritoneum. The third portion of the rectum is derived from ectoderm or skinfold and its lymphatics drain into the inguinal and coccygeal gland as well as upward into the rectal gland. The anal canal is one and one-fourth inches in length, contains no glands and is lined by pavement epithelium. Cancer of this part of the rectum constitutes about six percent of rectal cancers, and the type is epithelioma.

Carcinomatous lesions of the rectum and rectosigmoid usually occur singly and are either excavating or proliferative (the former more malignant). The surrounding mucosa is normal. In case of benign lesions, the adjacent mucosa is of an inflammatory nature. Squamous cancer of the anus arises from epithelial cells of the anal canal, usually posteriorly, and is more frequent in females than in males—six to one. Leucoplasia sometimes precedes squamous carcinoma of the anus as well as of the vulva.

Diagnosis is made by the history of the case, physical and rectal examinations, and biopsy. Bleeding is most common as an early symptom. Pain is common in anal cancer due to ulceration or invasion of the growth into the sphincter ani muscle or along the nerve sheaths. Tenesmus may be distressing, and bowel habits may change to constipation or diarrhea. Perirectal abscess, fistula in ano, and fissure in ano may develop with a feeling of fullness in the rectum. Loss of weight is a late symptom. The duration of symptoms in squamous cell carcinoma is eighteen months, in adenocarci-

noma thirteen months. Squamous cell cancer metastasizes chiefly upward to the mesocolon, less often laterally to the levators and downward to the skin and fat. Adenocarcinoma commonly transfers to the liver.

Treatment for cure consists of the removal of the tumor and the regional lymphatics. Squamous cell carcinoma of the anus and rectum can also be cured by radium. At the anus, the carcinoma is radiosensitive, but its metastases are radioresistant. Radiation is available in three general types: radium element, radon, and x ray. Small anal tumors, less than four cm. in diameter, when easily accessible, are suitable for radiation. Larger growths, malignant in appearance, even if small and high tumors, should be treated by radical excision including the regional lymph nodes.

The patient's own ignorance is often responsible in part for the delay in obtaining proper operative therapy. Some patients have fear of an operation. The practitioner who first sees the case often fails to examine the patient fully, by inspection, palpation, digital rectal exploration—proctoscopy. Dispensary patients are rarely thoroughly examined unless they reach the proctology division. A history of constipation or diarrhea frequency, ribbon-shaped stool, perhaps mucous and bloody in character, and pain suggests a more extensive investigation, including barium enemas, an x ray of the entire colon, a biopsy when a mass is found, and a Wassermann test. A benign polyp may lead to a future cancer. Many patients are mistakenly operated upon for hemorrhoids.

Delay in treatment often results from the absence of definite symptoms and the lack of disability, which deceive the doctor, and the patient often loses time by traveling to many doctors. Delay in early operation is the cause of death by gland and remote organ metastasis. Anticancer propaganda for the lay public must be made much more effective if we expect patients to seek early medical advice. Also strenuous propaganda must be carried out within the medical profession for doctors to suspect cancer and refer patients to hospitals or surgeons for diagnosis and proper treatment. When the avoidable delay can be reduced one-half to two-thirds of its present length, then only shall we expect a real improvement in the treatment of patients who are victims of cancer.

820 ST. MARKS AVENUE

*Read before the Clinical Society of Unity Hospital, Brooklyn, December 13, 1944.

Editorials

Forty Years Ago

In the past forty years we have learned a lot about the science of foods; about proteins and fats and starches and sugar; about mineral content; and, most recently, about the vitamins; where they may be found, what they do for us, and what happens to us if we do not have the proper ones in adequate amounts. Nevertheless, forty years ago there was a lot of common sense in the methods of handling the problems of diet and nutrition, which has been borne out by our more recent and scientific discoveries in regard to what we should eat, how it should be cooked, and how we should eat it. As far as that is concerned, in many places throughout the world four hundred years ago a well balanced and nutritious diet was utilized on a purely empirical basis.

About forty years ago the MEDICAL RECORD published a series of articles by Dr. Max Einhorn which dealt with important questions relating to diet. Much of this material is so valid and important today that we are taking the liberty of republishing some of these articles. We believe they contain material which is no less valuable today, in spite of the newer findings, than it was when originally published forty years ago. At least we feel that our readers will find these articles interesting.

The first article in the series, entitled "The Art of Proper Eating", appears in this issue of the MEDICAL RECORD.

Cancer

Cancer is one of the worst enemies of man and, while we have learned a great deal about it, all of our knowledge is fragmentary and far from complete. We do know that certain measures, surgical and physical, are successfully used to combat cancer, yet we do not know for certain many of the basic laws which govern this ungovernable disease. More research has been done in this field of medicine, we believe, than in any other single field of medicine but we should be far from satisfied with our present-day knowledge. Much more remains to be found out.

In the last decade most of the progress in medicine has been done in combatting infectious diseases by chemotherapy, by molds, and by proper nutrition, but our progress in the knowledge of cancer, its causes and efficient weapons to combat it, is still in its infancy. Why groups of cells should become so unruly and end by destroying their host is still a mystery. We can frequently attack them and destroy them with rays and surgery, but often their invasion has become so secure and complete that we are unable to check their ravages. They may at times invade tissues from which they can-

not be removed without dire consequences to the patient.

We do know that frequently early detection and removal of the cancer cells will effect a cure, and one of our urgent duties is to inform the public and keep on informing it of the necessity of early detection and drastic and immediate remedial measures. Every day lives are saved by early surgical or physical intervention. The cancer research workers are undaunted and they go on day after day and year after year striving to determine accurately, if possible, the real etiological factors that govern the cause of cancer.

April has been designated as a month during which we shall attempt to focus the attention of the medical profession on the problem of cancer. Every physician at one time or another is called upon to warn his patients about the necessity for the early recognition of cancer, and immediate action in case cancer exists and can be detected. All the aid that can be given to the medical profession or to the public should be given with the knowledge that it serves for the benefit of all mankind.

Meningitis and Medical Magic

Only a few years ago, a very few in fact, meningitis was looked upon by every doctor as almost uniformly fatal. In 1927 the two Goldsteins (H.Z. and H.I.) published a review of the literature concerning the type caused by pneumococcus (International Clinics, Sept. 1927) and found only one hundred and fifty reported recoveries! Waring and Smith in the *Journal of the American Medical Association*, Oct. 14, 1944, saw twenty-nine cases at Sydenham Hospital, Baltimore, between 1930 and 1936. There was no therapy other than "supportive". The mortality was one hundred percent. In contrast they now report twelve cases of pneumococcus meningitis treated with sulfonamide and penicillin, with eleven recoveries. The one patient who died did so within ten hours of admission. The case was the fulminating type and beyond redemption. Results are better if and when both the agents are used early, vigorously and simultaneously, say these authors.

Sweet, Stanley, Dowling and Lepper of the Medical Corps, Army of the United States, support this contention in the *Journal of the American Medical Association*, February 3, 1945. Sixteen patients with pneumococcal meningitis were treated with penicillin (with or without sulfonamides). There were nine deaths; but of forty patients treated with sulfonamide and *no penicillin*, there were thirty-seven deaths! The conclusion seems obvious that neither of these agents alone is entirely satisfactory in severe infections, but in combination, the results are little short of miraculous compared with any therapy we have previously used.

Method of administering penicillin are still not def-

initely established. The chief avenues are, of course, by mouth and intravenous and intramuscular injections. The combination of digestive and intramuscular routes seems to have given satisfaction where sulfadiazine therapy was used. As for penicillin, it is affected adversely by the digestive juices and much of its power is thereby lost. This seems not to be the rule with the sulfa drugs. When confronted by a very ill patient, where every moment counts, one would think it advisable to get any therapeutic agent into the blood stream as quickly as possible, and this means intravenous administration. But one must remember that rapid instillation of foreign elements into the blood stream can cause chill, shock and a possible fatality; therefore, the slow drop by drop method could be recommended, thus giving time for the body to accommodate itself to this "new order". It is tempting, of course, to tap the spinal fluid in these cases and inject penicillin intrathecally, but the amount of medication thus introduced should be from five to fifteen percent less than the amount of spinal fluid withdrawn. There is already increased intracranial and intraspinal pressure from the disease; therefore the severe head and spinal pains. To remove too much spinal fluid may provoke collapse and respiratory center failure. While "the needle" is much used for diagnosis of the condition of spinal fluid, the procedure is not without danger. Partial (even complete) paralysis "from the waist down" has often been reported, and while it usually recovers in a few weeks or months, it is a source of great anxiety. Bold surgeons enter the cisterna magna, even the cerebral ventricles, with impunity and often succeed in accomplishing their purpose, but many patients complain bitterly a long while thereafter, and are likely to talk about "the remedy being worse than the disease". However, where a life is at stake desperate measures must and will be taken by any physician at any time.

Current medical literature is full of astounding case reports where penicillin has been a wonder worker. It is hard for the medical mind so used to failures or half results to believe in miracles, but they are being reported by many well-qualified clinicians. For example: a woman, sixty years of age, suffered the common sequence of acute otitis media, mastoiditis, meningitis and bacteremia with Type III pneumococcus which had also invaded the petrous bone. Surgical drainage of all areas was carried out, penicillin was used locally and systemically, but thrombosis of a lateral sinus supervened. Another operation, administration of penicillin, and complete recovery!

Small wonder that both lay and medical press is steaming with excitement. There is always, however, a levelling-off period later on. Let us not apply our inflated war psychology too intensely at the bedside.

Nevertheless we can still be sure that meningitis of a certain type is being mastered right now. That is, indeed, a great medical victory.

News Items

Harvey Lecture.—The fifth Harvey lecture was delivered by George Wells Beadle, professor of biology, Stanford University, on Thursday evening, February 15th, the subject being, "The Genetic Control of Biochemical Reactions".

Medical Bibliography Exhibit.—An exhibition of books on medical bibliography through the eighteenth century, arranged in honor of the four hundredth anniversary of the publication of Konrad Gessner's bibliography, is on display in the library of the New York Academy of Medicine. The exhibit will be held through April 1st.

Tuberculosis Mortality.—The tuberculosis death rate for the first nine months of 1944 was 42.1 per 100,000 population. The rates for 1943 and 1942 were 42.6 and 43.1, respectively.

Urological Surgery in War.—Major General George C. Prather, M.C., U.S. Army, Boston, Mass., read an interesting paper on "Urological surgery in war", at a combined meeting of the Section of Genito-urinary Surgery, New York Academy of Medicine, and the American Urological Association, held at the Yale Club on March 15th.

Loeb Lecture.—Dr. Alfred Blalock, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, delivered the tenth annual Leo Loeb lecture in St. Louis, Mo., on February 13th. The subject was "Traumatic Shock". The lecture was given under the auspices of Mu chapter of Phi Beta Pi Fraternity, Washington University School of Medicine.

Red Cross Work in China.—Dr. Chiang Monlin, president of the Chinese Red Cross, in a report to the directors of the American Bureau for Medical Aid to China, said that with medical personnel totaling only 545, spread out among 108 medical units, the Chinese Red Cross treated 13,161,845 soldiers from August, 1937, to June, 1944, and among these there were eight million surgical cases.

Thiouracil Treatment of Graves' Disease.—At a stated meeting of the New York Academy of Medicine, Thursday evening, March 1st, Dr. David P. Barr, professor of medicine, Cornell University Medical College, discussed the clinical aspects of the treatment of Graves' disease with thiouracil, and Dr. Ephraim Sharr, associate professor of medicine, discussed the metabolic aspects.

Malaria in Panama.—As a result of a campaign waged against malaria by the government of Panama in cooperation with United States health authorities, malaria in Panama is steadily decreasing, according to Dr. Frederico Rodriguez, of Colon, who arrived in the United States early in February to make a special study of abdominal surgery at the Memorial Hospital. It is hoped that with the continual improvement in sanitary conditions the disease will eventually be completely eradicated in that area.

Clinical Society of Reconstruction Hospital.

—At a meeting held on Wednesday evening, February 21st, the following cases were presented and the post-trauma and postoperative results discussed: Fracture of the humerus with associated brachial plexus injury, by Dr. George A. Glass; Rupture of triceps muscle, with compression of radial nerve, by Dr. B. Bernard Kaye; Avulsion of long head of biceps from its insertion, and a case of malunion following Colles' fracture, by Harry V. Spaulding. Dr. David Goldblatt was chairman.

Bicentennial of Philippe Pinel.—At a joint meeting of the Section of Historical and Cultural Medicine of the New York Academy of Medicine and the New York Society for Medical History, held at the Academy on Wednesday evening, March 14th, the bicentennial of the birth of Philippe Pinel (1745-1826) was celebrated. The program consisted of biographical remarks by Dr. Victor Robinson; and addresses by Dr. Claude Heaton on Pinel in medicine, and Dr. Raymond de Saussure on Pinel in psychiatry. Dr. Victor Robinson is chairman of the Section of Historical and Cultural Medicine, and Dr. Gregory Zilboorg is president of the New York Society for Cultural Medicine.

Society for Experimental Biology and Medicine.—The New York Section of the Society for Experimental Biology and Medicine, in affiliation with the New York Academy of Medicine, met at the Academy, Wednesday evening, February 14th. Papers read at this meeting were: "The cardiotoxic action of preparations containing the oxygen-labile hemolysin of *Streptococcus pyogenes*", by G. L. Cantoni and A. W. Bernheimer, of New York University; "Some effects of radioactive sodium on laboratory mice", by T. C. Evans and E. H. Quimby of Columbia University; "Inhalation of penicillin aerosol", by A. L. Barach, F. H. Silberstein, E. T. Oppenheimer, T. H. Hunter, and M. Soroka, of Columbia University; "Some experiences with the use of pressor drugs in peripheral circulatory failure", by D. W. Fassett and H. Taube of New York University; "Do electrical recordings from the vagina of the albino rat correlate with the estrous cycle?" by J. L. Boling of New York University.

Clinical Research Meeting.—The New York Academy of Medicine will hold a meeting Wednesday evening, May 16th, to provide a forum in which research workers of New York City and vicinity may present results of original research in clinical medicine. This meeting is being arranged by the Committee on Medical Education of the Academy in view of the dearth of meetings of national medical societies before which research work has usually been presented. Presentations will be limited to twelve minutes, and a brief period of free discussion will follow each presentation. The Committee extends an invitation to all research workers of Greater New York and neighboring cities within a radius of one hundred miles, to submit abstracts, not to exceed two hundred words in length, of proposed presentations to the Secretary of the Committee on Medical Education of the Academy, 2 East 103rd Street, New York, 29, not later than April 5, 1945. A formal invitation to participate in this program will then be extended by the Committee to the authors of papers selected for presentation.

International Spanish-Speaking Association.

—At a meeting of the International Spanish-Speaking Association of Physicians, held in New York on Friday, February 16th, a symposium on medical, surgical, and war motion pictures in sound and color was presented. Dr. S. P. Goodhart read a paper on Psychoneurosis in relation to psychosomatic conditions, and Dr. D. H. Jones read a paper on the treatment of stenosis of the esophagus. The guest of honor was the Consul of Haiti.

American Otorhinologic Society.—At the second annual meeting of the American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, held on November 10, 1944, the following officers were elected for the year 1945-1946: President, Dr. Morris S. Bender, New York; vice-president, Dr. Alfred Schattner, New York; secretary, Dr. Jacob Daley, New York; treasurer, Dr. Benjamin H. Shuster, Philadelphia; board of directors: Dr. Matthew S. Ersner, Philadelphia; Dr. Nathan A. Bolotow, Providence, R.I., and Dr. John P. Baker, New York.

Friday Afternoon Lectures.—The following lectures have been scheduled in this series for the month of March:

March 2: The hormonal treatment of prostatic malignancy, by Clyde Leroy Deming, clinical professor of urology, Yale University School of Medicine.

March 9: Pathogenesis, diagnosis and treatment of anemia of the newborn, by Peter Vogel, adjunct physician for hematology, Mount Sinai Hospital.

March 16: Recent advances in laboratory procedure, by N. Rosenthal, associate physician and hematologist, Mount Sinai Hospital.

March 23: The scope of radiology in the examination of the upper gastrointestinal tract, by Marcy L. Sussman, radiologist, Mount Sinai Hospital.

In April, the three final lectures in the current series will be presented as follows:

April 6: Treatment of syphilis with penicillin by A. Benson Cannon, associate clinical professor of dermatology, College of Physicians and Surgeons, Columbia University.

April 13: Recent developments in our knowledge of the metabolism of bone in health and disease by Ephraim Shorr, associate professor of medicine, Cornell University Medical College.

April 20: Indications and contraindications for caudal analgesia, by Clifford B. Lull, clinical professor of obstetrics, Jefferson Medical College, Philadelphia.

Typhus Commission Awards.—The U.S. Typhus Commission medal has been awarded to eight Army and Navy officers for "exceptionally meritorious service" in the control of typhus. The Army officers who received the medal are: Major Theodore E. Woodward, M.C., formerly of Westminster, Md.; Col. Harry Plotz, M.C., formerly of Brooklyn, N.Y.; Capt. Byron L. Bennett, Sanitary Corps, A.U.S., formerly of Boston; Lieut. Col. John C. Snyder, M.C., formerly of New York; Major Charles M. Wheeler, Sanitary Corps, A.U.S., formerly of Brea, Calif. The Navy officers who received the medal are: Capt. Thomas J. Carter, chief of the Preventive Medicine Division, Bureau of Medicine and Surgery, Washington, D.C.; Lieut. Comdr. William B. McAllister Jr., formerly of Cleveland Heights, Ohio and Lieut. Comdr. Andrew Yeomans, formerly of Brookline, Mass. The medal was also awarded to two American ambassadors: The Hon. Laurence A. Steinhardt, U.S. Ambassador to Turkey, and the Hon. Alexander Comstock Kirk, U.S. Ambassador to Italy.

Disease of Coronary Arteries.—At the annual meeting of the New York Academy of Medicine, held on Thursday, January 4th, the scientific program was devoted to disease of the coronary arteries. Dr. Robert L. Levy, professor of clinical medicine, College of Physicians and Surgeons, Columbia University, read a paper presenting a clinical picture of coronary heart disease and "Treatment of Diseases of the Coronary Arteries" was the subject of a paper read by Dr. Charles C. Wolferth, professor of clinical medicine, School of Medicine, University of Pennsylvania.

Conference on Preventive Medicine Problems.—A three-day conference of Army preventive medicine officers was held at the School of Hygiene and Public Health, Baltimore, Md., on February 14th, 15th, and 16th. The purpose of the conference was to present recent developments in research and current policies and to discuss preventive medicine problems and their solutions. The topics discussed included immunization, the control of infectious diseases, insect control, sanitary engineering, industrial medicine in the Army, public health aspects of tropical diseases, laboratory services and Army veterinary activities, venereal disease control, nutrition of the troops, health programs in occupied countries, foreign quarantine in military traffic and medical intelligence.

Society of Medical Jurisprudence.—At a meeting of this society, held in New York on Monday evening, February 19th, a symposium was presented on the following subject: "Is the obligation of providing medical care to all, that of the state, the public, or the medical profession?" The speakers included Dr. Nathan B. Van Etten, who discussed the subject from the viewpoint of the practitioner of medicine; Colonel Louis H. Bauer, M.R.C., U.S. Army, who presented the viewpoint of organized medicine; Dr. William W. Herrick, who discussed federal social security health legislation; Hon. William F. Bleakley, former justice of the New York Supreme Court, who delivered an address on the probable attitude of the public in regard to the future of medicine in the United States, and Allen Wardwell, president of the bar association, who discussed the question of medical care through insurance, whether it should be provided by the medical profession or by the government. Mayor LaGuardia outlined the health insurance plan of Greater New York, and a general discussion followed.

Health Mission to Liberia.—An all-Negro mission of eleven public health workers, including engineers, entomologists and nurses, will soon launch a five year health and sanitation program in Liberia, West Africa, according to *The Military Surgeon*. The mission was created by the Public Health Service in cooperation with the State and War Departments.

The mission will be expected to do whatever it can to bring communicable diseases in Liberia under control, to protect as far as possible the military personnel and transients from the United States and other Allied nations in Liberia against such diseases, and to reduce the chances of their transmission to the United States. The mission will also assist the Liberian Government in the development of a broader public health service, which will include the training of a director, the establishment of divisions of communicable disease control, malaria control and venereal disease control.

New York Institute of Clinical Oral Pathology.—An open meeting of the New York Institute of Clinical Oral Pathology will take place at the New York Academy of Medicine, on Monday evening, April 30, 1945, at 8:15. The program will consist of a symposium entitled "A Survey of the Antibiotic Problem". The following investigators will participate:

Dr. Daniel Laszlo, Mt. Sinai Hospital, New York: "The Role of Biotics and Antibiotics in Chemotherapy";

Dr. Frank Lamont Meleney, associate professor of clinical surgery, College of Physicians and Surgeons, Columbia University: "The Problem of Penicillin in Treatment of Mixed Infections";

Leo Stern, D.D.S., Mt. Sinai Hospital, New York: "The Treatment of Acute and Chronic Infections of the Jaws with Antibiotics";

Lt. Col. Kenneth M. Kahn, M.C., AUS, Chief of Section for Otolaryngology, Halloran General Hospital, Staten Island, New York: "The Relative Value of Antibiotics in the Treatment of Otolaryngic Diseases";

Louis I. Grossman, D.D.S., associate in oral medicine, and Head of Root Therapy Clinic: "Evaluation of Antibiotic Agents for Root Canal Treatment";

Dr. Ludwig von Sallmann, Department of Ophthalmology, College of Physicians and Surgeons, Columbia University: "The Role of Iontophoresis in Ocular Therapy with Antibiotics";

Alvin E. Strock, Senior Assistant Dental Surgeon (R), U.S. Public Health Service Hospital, Manhattan Beach, Brooklyn, N.Y.: "Treatment of Ulcerative Stomatitis (Vincent's Infection) with Penicillin".

For further information address the Executive Secretary, 101 East Seventy-ninth Street, New York 21, N.Y.

Personal.—Dr. Nolan D. C. Lewis, director of the Neurological Institute, has been appointed editor of the *Journal of Nervous and Mental Disease*, succeeding Dr. Smith Ely Jelliffe, who has retired on account of ill health.

Major General Merritte W. Ireland, former Surgeon General of the U.S. Army, has received the William Freeman Snow Award, which is given annually by the American Social Hygiene Association "for distinguished service to humanity".

Rear Admiral Edward R. Stitt, former Surgeon General of the U.S. Navy (retired), was presented with the gold medal of the American Foundation for Tropical Medicine, at a dinner held at the University Club, New York, on February 5th, in recognition of "outstanding service" in that field. A gift of \$500 is included in the award. Colonel Richard P. Strong, recipient of last year's award, made the presentation.

Dr. Ulysses Grant Dailey, chairman of the department of surgery, Provident Hospital, Chicago, delivered a lecture on "Indications for Operation in Goiter", before the faculty and student body of the School of Medicine, University of Port-au-Prince, Haiti, on December 20, 1944.

Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute, has been elected to honorary membership in the Royal Society of Medicine of Edinburgh.

Colonel Richard P. Strong, M.C., director of tropical medicine at the Army Medical School, Washington, D.C., delivered a lecture on December 16th at the annual meeting of the Medical Association of Puerto Rico, held in San Juan. His subject was "The Importance of Ecological Investigations in Tropical Medicine in the Present War".

Book Reviews

Malaria

Malaria. Diagnosis, treatment, and prophylaxis. By WILLIAM NEWBOLD BISPHAM, M.D., Baltimore: The Williams & Wilkins Co., 1944. Pp. 197. Price \$3.50.

The life cycles of the malarial parasite in man and in mosquito are well set forth in a colored diagram facing the title page. This gives a better idea of the subject than pages of reading, although it tells nothing of prevention and treatment, of course. Concerning prevention, the authors say (page 141), "After the personnel has been protected . . . by prophylaxis and by screening the house . . . steps must be taken to eliminate the mosquito vector . . . This study is called a malarial survey." The survey is of the population and of the area affected. Then the sanitary engineer is supplied with a map which lists all breeding places of this insect, but he may be strictly limited in what he can do because it costs a great deal of money to exterminate such places of origin. Moreover, when the natives find relative freedom from the pest, they lose interest in further effort, and relapses are, therefore, likely to occur.

There are several plasmodia, e.g., vivax, falciparum, ovale, and others. The *Plasmodium malariae* is the cause of the quartan type with recurrence of symptoms every fourth day. When the pest, living in a blood cell, causes that cell to swell and burst, we have a "shower", in the blood stream, which brings the well-known "chills and fever".

Medical treatment is greatly obligated to quinine, atabrine and plasmochin, and some credit is given to x rays, but radiation does not kill the parasites. The use of immune blood has been tried with satisfactory results by Lorando and Sotiriades, but seems not to have been widely used by other workers. There are therapeutic nihilists who think that malaria is never cured, but recurs after years of seeming inactivity. In any case it is a potent cause of disability to thousands of natives, and a curse to the white man. After this war, we may still have "advances" which Colonel Bisham does not mention in his book because these are not yet ready for publication. Nevertheless this is an important contribution to the study of an ancient disease.

Endocrinology

Female Endocrinology. Including Sections on the Male. By JACOB HOFFMAN, A.B., M.D., demonstrator in gynecology, Jefferson Medical College. Philadelphia and London: W. B. Saunders Company, 1944. Pp. 788. Price \$10.00.

The foreword by Brooke M. Anspach states that Hoffman has worked for many years on the pathology of gynecology as it is found in Jefferson Medical College. In 1931 he organized an endocrine clinic and it is from this clinic and the laboratory and private practice that this book has been put together. Endocrinology has been a no-man's land for a great host of physicians. It still is. The "hormones" have, in general, been prescribed cautiously, because their action was not well understood. Dr. Hoffman states: "At the present time, there are few conditions where the available gonadotropes or gonadal hormones can with certainty be said to be of benefit. Moreover, their promiscuous use may disturb the delicate and complex endocrine mechanism in the young, and encourage

dangerous delay in the recognition and control of organic lesions." In any case, a working knowledge of glandular physiology is of first importance.

We know that an imbalance between the thyroid or hypophysis or adrenals or internal secretions of the sexual glands, causes an "upset" of the entire body economy. Symptoms may be definite, but their causes may remain obscure. The laboratory has given us certain diagnostic aids; for example, the Aschheim-Zondek test, the quantitative determination of estrogens in blood and urine, and the study of endometrial biopsy after curettage. Bound up with all these are the peculiar phenomena of "sex" both in male and female. On page 305, to quote: "Partial suppression of the anterior lobe (of the hypophysis) principle may be responsible for amenorrheas of long or short duration". Work on the hypophysis has been largely in connection with surgery, but there is still much of mystery in the function of this peculiar subcerebral organ. Dr. Hoffman has written a very readable book, and if it contains much speculative material, that is not his fault, but is due to the intricacy of the subject.

Rheumatic Fever

Pathology and Therapy of Rheumatic Fever. By LEOPOLD LICHWITZ, M.D., formerly clinical professor of medicine, Columbia University. Foreword by WILLIAM J. MALONEY, M.D. Edited by MAJOR WILLIAM CHESTER, M.C. New York: Grune and Stratton, Inc., 1944. Pp. 211. Price \$4.75.

The very first sentence in this book is striking. It states: "Rheumatic fever is a noninfectious disease." This will stir the blood of many pathologists and bacteriologists who for years have insisted upon the bacterial origin of rheumatic fever. However, bacterial allergy may well be one cause. The disease attacks mesenchymatous tissue—tendons, fascia, joint capsules, ligaments, heart valves, the pericardium, etc. Thermal influences are potent causes of attacks or relapses. Workers who are exposed to intense heat succumb, and sudden changes of temperature combined with damp, cold sunless weather may activate the condition. The bilateral symmetry of attacked joints is remarkable. Injuries to joints often precede an arthritis, and occupational causes are seen in the wrists of washerwomen, and the knees and ankles of infantrymen. Rheumatic fever "in a majority of cases" is secondary to some upset of metabolism. A faulty defense mechanism is always present. The antigen is a protein molecule of some sort, a molecular product, not infrequently, of bacterial action. The hemolytic streptococcus is often found in throat cultures preceding an attack. "Severe sore throat" may be described by the patient, but often this is not remembered when we search for "history". Every tissue and organ of the body may show rheumatic manifestations. The eye may be affected seriously. Edema of the disc, optic neuritis and atrophy, retrobulbar neuritis have been reported, and most practitioners have seen iritis as a complication. Therapy should be considered from three angles: 1, Preventing entrance into the body of bacteria which produce the antigen which "sparks" the onset; 2, eradicating the bacteria; 3, desensitizing the body to the antigen. Just how these measures can be carried out is described in the text. This is the best book on the subject which has come under the eye of this reviewer. It clears the rather murky atmosphere in which rheumatic fever has been shrouded hitherto.

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MARCH 1945

Medicolegal Notes

Suicide by Poison as an Exception from Risk

In an action on a double indemnity rider attached to a life policy, governed by the Missouri statutes, the Missouri Supreme Court, *Fields vs. Pyramid Life Insurance Co. of Topeka, Kan.*, 176 S.W. 2d 281, affirmed the Missouri Court of Appeals judgment (160 S.W. 2d 111) which affirmed a judgment of the County Circuit Court for the defendant.

It was held that such a rider, by containing an exclusion from the coverage of suicide caused by the taking of poison, did not cover death resulting from self-administered poison while insane, because the Missouri statute, eliminating the defense of suicide in actions on such policies, creates no liability in the event of suicide by poison, sane or insane, under policy provisions excepting liability in the event of death by poison.

The court found no prior Missouri decision on the point. The statute eliminating the suicide defense, Mo. R.S.A., Sec. 5851, it has been held, does not put into the policy a single obligation other than those mentioned in the policy. It merely takes out of the policy the defense of suicide as to the obligations

mentioned in that policy. It that is so, it follows, the Missouri Supreme Court says, "that no liability is created by said section in the event of suicide by poison, sane or insane, under policy provisions expressly excepting liability in the event of death by poison. Otherwise, the statute not only adds an obligation to the policy, but adds an obligation explicitly excluded therefrom". The court overruled, to the extent indicated in its opinion, the case of *Applegate vs. Travelers*, 1910, 153 Md. App. 63, 84, 132 S.W. 2, 9.

War Risk Policy Does Not Cover Heart Ailment Aggravated by Submarine Alarm

A libel was brought in admiralty by the widow of a seaman to recover on a seaman's war risk insurance policy insurance against loss of life directly caused by "warlike operations in prosecution of hostilities", if loss should result directly and exclusively from bodily injuries within ninety days from the date thereof. The Federal District Court of Maryland held, *Gadsden vs. United States*, 54 F. Supp. 151, that the insured seaman's death, even if it were the result of a heart ailment aggravated by fright caused by a submarine alarm, the death occurring over ninety days after the alleged alarm, was not within the coverage of the war risk policy.

Not only was the policy described and referred to in the case as "war risk insurance", but the court held it doubtful whether the aggravation of the heart disease, from which the seaman in this case was suffering, by being badly scared by the submarine alarm, would constitute a "bodily injury" within the fair meaning of the policy. A new form of war risk insurance, more liberal to the seaman, has, since this policy was assigned, been adopted by the War Shipping Administration, but even if the libellant could claim the benefits of the new form of policy, the court held she had not been able to point to any particular provision of the new policy which could justify recovery.

Permanent Disability Benefits—Stokes-Adams Syndrome

In an action on a life policy for total permanent disability benefits, the Fifth Circuit Court of Appeals, *Mutual Life Ins. Co. of New York v. Davis*, 142 F. 2d 332, affirming judgment for the plaintiffs in the Federal District Court for Western Louisiana, held the evidence sufficient to take to the jury the question whether a heart block suffered by the insured rendered him unable to perform substantial and material acts of his business in the customary way, so as to entitle him to the benefits sought. The doctors diagnosed the heart attack as Stokes-Adams syndrome and much of the testimony consisted of expert testimony of physicians and surgeons.

Arthritic Disability Not Compensable in New Jersey

Testimony of a doctor to whom a compensation claimant was sent for x rays, that, from the pictures, the workman's trouble was "arthritic in origin" and the lack of any objective sign of any ailment or disorder whatever, and the workman's own conduct for seven months after the date of alleged accident to his back, was held proof that, if he had any disability, it was not the result of a compensable accident. *Spitz vs. National Rubber Mfg. Co.*, (N.J.) 39 A 2d 170.



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1. Sebrell, W. H., Ann. Int. Med. 15:953, 1941.

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(NASON'S)

At leading prescription druggists
2 oz. jars (5% & 10% strengths)

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*Swartz & Reilly, "Diagnosis and Treatment of Skin Diseases", p. 66

**Survey by independent research organization; details on request.

INDUSTRIAL PHYSICIANS: SUPERTAH is achieving gratifying results in Industrial Eczemas. Because pleasant and easy to use, it is especially valuable where close supervision is impractical. Write for physician's sample.

Tuberculosis and War

In Warsaw, Poland, in the first eight months of 1941, nine thousand persons died of tuberculosis, compared with three thousand in 1938, according to the Office of War Information.

In England, Dr. M. H. Kronenberg points out (*J.A.M.A.*, Mar. 11, 1944) that there has been a sharp increase in tuberculosis, especially among women, and particularly young women. The cause for this increase in the tuberculosis death rate is the most difficult health problem confronting the health authorities in England. It is felt that overcrowding, poor nutrition, worry and many other factors are all contributory, but as yet the one chief factor has not been determined, as well as the reason for the increase in tuberculosis occurring predominantly among young women.

In some of the European countries pneumonia is the chief cause of death, and the second major cause of death is tuberculosis, says M. E. Tennant (*Amer. Jour. Nursing*, June 1943). Under the conditions of war and military occupation, the prevalence of the disease is undoubtedly increasing, and it will be one of the principal problems of the reconstruction period, as it was after the last war. In combating tuberculosis, the first problem will be to locate the cases. Persons with open lesions should be isolated and taught how to care for themselves so as to be of the least possible danger to those with whom they must come in contact. In locating cases, traveling diagnostic units, including x ray equipment, will be essential. Locating the case is only the initial step; the big problem is to reduce contagion by removal, by home isolation, and by artificial pneumothorax. The public health nurse is an important factor in the fight against tuberculosis.

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FIXED CHARGES
MINIMUM
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	Neuralgia	Analgesia and sedation
	Dysmenorrhea	and sedation
		and sedation
		and sedation
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		and sedation
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		and sedation
		and sedation

NOTE: In charging pain, tenseness, anxiety and disquietude to such chronic distress states as migraine, neuralgia and dysmenorrhea, the physician may well credit 'PERALGA' Analgesic Sedative for both relief of pain and calming of the patient. Analgesia and sedation with 'PERALGA' Analgesic Sedative is obtained through the therapeutic coupling of acetophenetidin and acetylsalicylic acid with barbital.

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Health Conditions in the Middle East

Dr. Chester M. Suter and Dr. Maurice L. Tainter, of Winthrop Chemical Company, recently returned from a two month medical research mission to Egypt, Syria, Palestine, and other countries of the Middle East, where they studied problems relating to endemic diseases and the distribution of American medical supplies, and investigated the facilities for scientific research.

They found that the main health problem in the countries visited centered around sanitation. With no sewage systems, the water becomes highly contaminated, resulting in widespread bacterial infections. The food supply also becomes contaminated due to lack of refrigeration in a humid climate, causing a high incidence of gastrointestinal diseases. Tuberculosis was found to be epidemic, with families living in overcrowded conditions, making for ready transmission of contagious diseases.

Malaria was common throughout the area visited, and social diseases were almost universal among the natives. Malnutrition made a majority of the people poor risks for surgery; they were an easy prey to infectious diseases, and life expectancy was low.

In some localities one hundred percent of the population is infected with bilharzia, an infection that comes from the irrigation canals in the form of a parasite and burrows through the skin to live inside the human body to destroy internal organs.

Other tropical diseases which Drs. Tainter and Suter emphasized must receive the attention of this country's medical research include leishmaniasis, filariasis, and African sleeping sickness.

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At the age of 53, Ponce de León probably felt older than his years when he sought the "fountain of youth" in Florida. The leading infirmity of middle age, hypertension, may have driven him to seek the fabulous curative waters. Its symptoms, such as headache, tinnitus and dizziness, often heralded the twilight of life in his times.

Today, with HEPVISC available, the physician deals *quantitatively* with hypertension. He knows HEPVISC's prompt vasodilatation usually reduces blood pressure 20 to 30 mm. in 4 hours. He also knows HEPVISC has relieved symptoms in 80% of cases.

HEPVISC's effectiveness does not lessen on prolonged use. Benefits often continue for a period after withdrawal. HEPVISC should always be tried in theobromine-fast cases.

Each HEPVISC tablet contains 50 mg. *Viscum album* ext. and 60 mg. each of desiccated hepatic and pancreatic substances. *Dosage:* 1 to 2 tablets $\frac{1}{2}$ hour before meals. Courses last 2 to 3 weeks, with 1 week's interval between. For older patients courses last 3 to 4 weeks. Available in bottles of 50, 500 and 1000 coated tablets.

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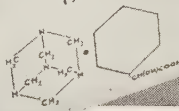
METHENAMINE
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MANDELIC ACID
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MANDELAMINE
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Chemical Combination Enables

SAFE AND

SIMPLIFIED THERAPY

in Urinary Infections

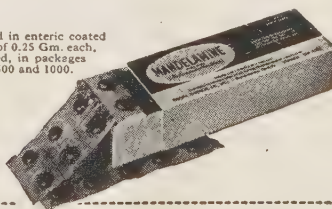
Mandelamine, by combining in a single medication the recognized effectiveness of mandelic acid as an acidifying agent and the efficiency of methenamine as a bactericidal agent, offers the physician a safe and simplified method of treatment for urinary infections.

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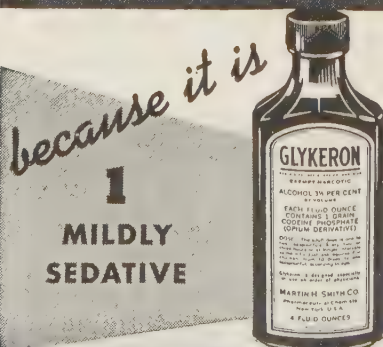
YONKERS 2, New York

Health Centers

Dr. Ernst P. Boas, New York, speaking before the U.S. Senate Subcommittee on Wartime Health and Education, in Washington, D.C., last September, said that to bring good medical care to the country at large and to provide for the needed extension of public health and preventive services, fully equipped health centers, smaller general hospitals and large general hospitals must be established throughout the country. Health centers will be the units in which the preventive medicine and public health work of the local community will be established. They should be large enough to include facilities for offices of physicians of that area, who with proper equipment and working as a group, can take care of many of the local needs. These health centers should be integrated with county or district hospitals, and these hospitals in turn should be related to larger hospitals in the urban centers where the most difficult cases, and those requiring the most specialized treatment will be taken care of. Many communities have not the financial resources to establish such institutions, and Federal funds will have to be made available for their construction.

With such a set-up doctors will be attracted to the smaller communities, and will be able to practice good medicine. Innumerable opportunities will become available for doctors discharged from the armed services. But if these services are to be fully utilized, and available to all, funds will have to be provided for their maintenance, and for the payment of doctors who work there. As many communities, will be unable to provide these funds, Federal funds will have to be made available. In part they can be provided by funds that would otherwise be allotted to veteran facilities.

GLYKERON... a double-action antitussive



because it is

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STRONGLY
EXPECTORANT

• It aids in breaking the vicious circle of coughs that are uselessly irritating or unproductive.

Dosage: For adults 1-2 teaspoonfuls every 2-3 hours or longer; children in proportion.

Supplied: In 4 oz., 16 oz., and half-gallon bottles.

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ONE out of every eight persons over 30 years old is reported to suffer from achlorhydria. Among the elderly the incidence is even greater. A new approach—the use of an amino acid carrier for hydrochloric acid in solid form—obviates the risks of tooth corrosion and inaccurate dosage. With Dartell Formula 200, the doctor is able to control the patient's intake of HCL with certainty.

Each tablet contains the equivalent of 10 minims of dilute hydrochloric acid in a glutamic (amino acid) base.

Glutamic Acid Hydrochloride	5 grains
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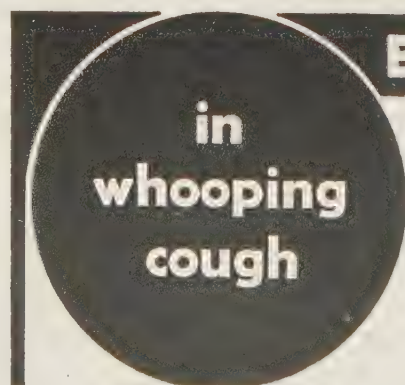
Army Hospital Ships

Five more troop ships are being stripped of their armament and converted into Army hospital ships in order to insure a speedier return of America's wounded soldiers. The addition of these new ambulance type hospital ships will bring the number of hospital ships, operated by the Army, up to twenty-nine, with facilities for transporting more than eighteen thousand sick and wounded.

Conversion of the new ships, which, together, will be able to carry 5,355 patients (4,073 litter and 1,282 ambulance), will be completed in about four months. They will be painted white, with red crosses and green bands, which insures protection under the Geneva Treaty, and be ready for service by June or July.

The vessels slated for conversion are the *Saturnia*, former Italian luxury liner; *Columbie* and *Athos II*, former French liners; *Republic* and *President Tyler*, former United States liners. Two other Army vessels are now under conversion as hospital ships. They are the *Ernestine Koranda*, named for an Army nurse, and the *Louis A. Milne*, named for a former New York Port surgeon.

Wilson's disease.—Erasmus Wilson, born in England in 1809, made many advances in dermatology, and his work was a landmark in the history of the English school of dermatology. His paper on lichen planus brought to him the eponym Wilson's disease. He was the first to describe Dermatitis exfoliativa, also known as Wilson's disease. Wilson estimated the number of hairs on the human scalp as 100,000. He described Trichorrhexis nodosa as Tricholasis. Wilson classified the diseases of the skin on a thorough anatomical basis. He died in 1884.



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IS A UNIQUE REMEDY OF UNIQUE MERIT

Cuts short the period of illness and relieves the distressing spasmodic cough. Also valuable in other Persistent Coughs and in Bronchitis and Bronchial Asthma.

In 4 oz. original bottles. A teaspoonful every 3 to 4 hrs.

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Years before official government sources promulgated the different daily vitamin-mineral requirements for different age groups, Vi-Syneral was developed to provide 5 separately balanced vitamin potencies—fortified with minerals—for each of 5 main age groups.

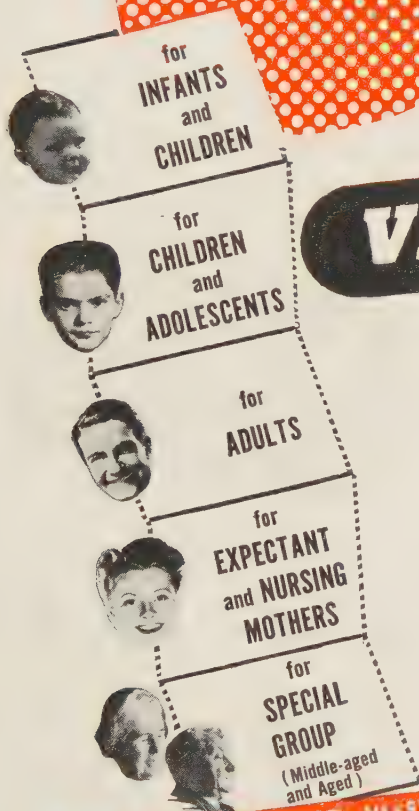
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provides a safety margin of vitamins, fortified with minerals . . .

VITAMINS: A - B₁ - B₂ - B₆ - C - D - E - Niacinamide - Cal. Pantothenate and natural vitamin B complex from small amounts of yeast.

MINERALS: Calcium, Phosphorus, Iron, Iodine, Copper, Magnesium, Zinc, Manganese.



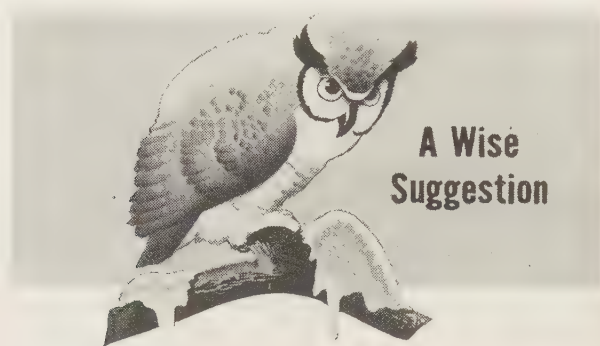
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Therapeutic Action of PERTUSSIN for Coughs in

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What Pertussin Is: The single therapeutic element in Pertussin is an extract of Thyme (Process Taeschner) which is quickly absorbed and carried to the secretomotor center. It is highly beneficial in easing cough paroxysms.

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Pertussin is pleasant tasting and entirely free from opiates, chloroform or creosote. You may indicate it as often as needed.

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For Children, Adults and the Aged

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The U.S. Vitamin Corporation, of New York, announces an increase of potency in three of its more important preparations, vi-syneral, vi-litron, and poly-B. Although potencies have been stepped up considerably, there is no advance in price on any of these products.

Vi-syneral, original vitamin-mineral preparation, now contains an average of forty percent more of important vitamin B₁, B₂, niacinamide, calcium pantothenate, ascorbic acid, and alpha-tocopherol (vitamin E). This rise in potency is in line with the company's pioneering and investigations in multiple vitamin-mineral therapy and with newer clinical research on vitamin requirements. It applies to all five Funk-Dubin balanced potencies: 1, infants and children (to age six); 2, children and adolescents (age six to sixteen); 3, adults; 4, expectant and nursing mothers; 5, special group (for the middle-aged and aged). Vi-syneral is well known as a multiple vitamin-mineral supplement to the average diet, for helping to ward off nutritional deficiencies, or as an adjunct to other specific treatment. Besides all the vitamins now known to be necessary to human nutrition, vi-syneral furnishes eight minerals: calcium, phosphorus, iron, iodine, copper, manganese, magnesium and zinc.

Poly-B, the U.S. Vitamin vitamin B complex, available in capsule and syrup forms, has also been substantially increased in potency. Each capsule or each teaspoonful of syrup (five cc.) now affords vitamin B₁ (thiamine hydrochloride) three mg.; vitamin B₂ (G, riboflavin) three mg.; niacinamide (nicotinamide) twenty mg.; vitamin B₆ (pyridoxine) one mg.; calcium pantothenate three mg., and small amounts of

(Continued on page 184)

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more than ever!

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In practical terms, continued use of ALLIMIN makes possible continued relief of associated headaches and dizziness. These distressing

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ALLIMIN Tablets are enteric coated, tasteless and odorless. Each tablet contains 4.75 gr. dehydrated garlic concentrate and 2.37 gr. dehydrated parsley concentrate. The minimal dose is 2 tablets with water, t.i.d., after meals. Intermittent courses of administration, skipping every fourth day, recommended.

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Glythoid Pills are well tolerated by many patients who react unfavorably to desiccated thyroid.

Dose: 5 min. pill, 2 to 4 times daily.

Bottle of 50 pills.

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natural B complex from brewer's yeast extract and liver concentrate, two of the richest natural sources of vitamin B complex. Parenteral poly-B special, for intravenous and intramuscular use, has not been overlooked in the potency elevation of its vitamins B₁, B₂, B₆ and niacinamide content, and the addition of calcium pantothenate.

Vi-litron, issued as capsules and syrup, is another U.S. Vitamin product which is today higher in potency for the treatment of secondary anemias, particularly those associated with nutritional deficiencies. Vi-litron capsules combine a high concentration of the anti-secondary anemia fraction of liver with good potencies of ferrous sulfate, fortified with vitamins C, B₁, B₂ (G) and niacinamide. V-litron syrup offers a similar formula containing iron peptonate, pantothenic acid and vitamin B₆.

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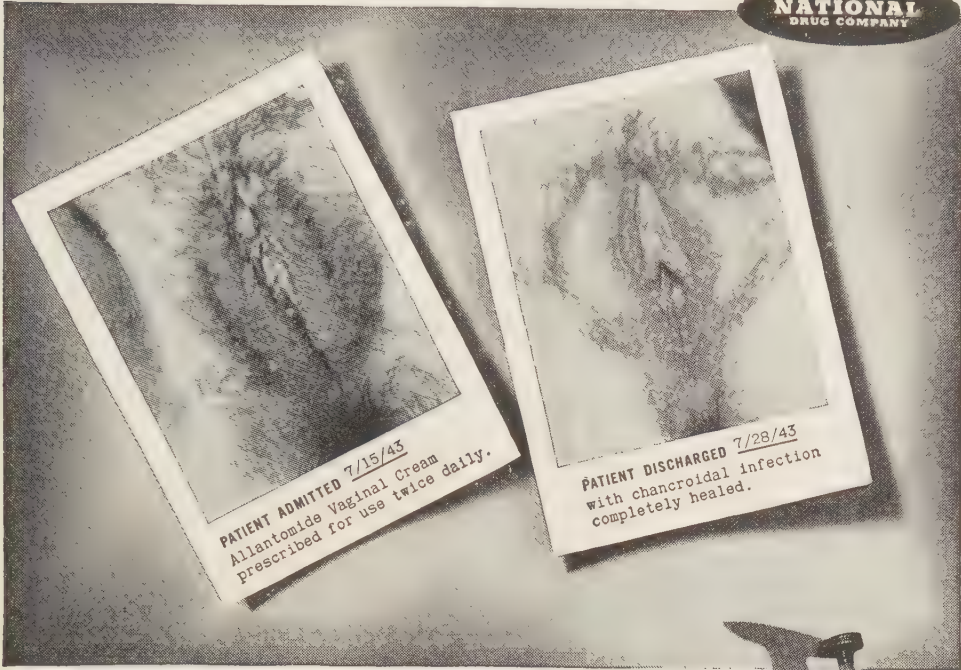
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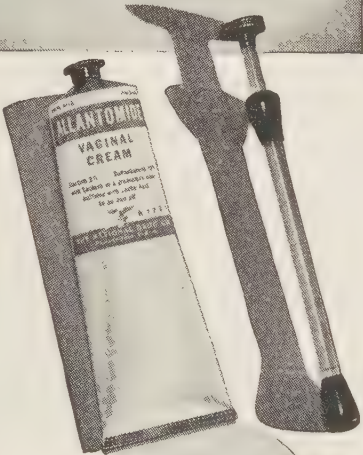


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ALLANTOMIDE Vaginal Cream has provided uniformly good results in treating chancroid of the vulva and other specified disorders of the female genital tract, including *Trichomonas vaginalis* vaginitis.

Parks (Med. Annals, D. C., 1943, 5:175) states: "Chancroids are rendered asymptomatic and the areas of ulceration heal rapidly with very little scarring. The gratifying results obtained with allantoin-sulfanilamide-lactose vaginal ointment recommend it as a convenient and effective method of treating many ulcerative lesions of the lower genital tract of the female."

Allantomide Vaginal Cream is a preparation consisting of 15% sulfanilamide, 2% allantoin, and 5% lactose in a specially developed non-greasy, water-miscible base buffered with lactic acid to a pH of 4.5. Literature available. Write The National Drug Company, Dept. J, Phila. 44, Pa.



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VAGINAL CREAM

Allantomide Vaginal Cream is available in 4 ounce tubes, supplied with or without applicator.

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The local problem in acne vulgaris is to remove the excessive sebum with the least amount of irritation. This cannot be accomplished with ordinary soap and water as easily as with sulfated oils. Swartz and Blank report gratifying results when Acidolate, the modern sulfated-oil detergent, is utilized in place of soap to secure and maintain skin cleanliness (*J.A.M.A.*, 125: p. 30-31, May 6, 1944).

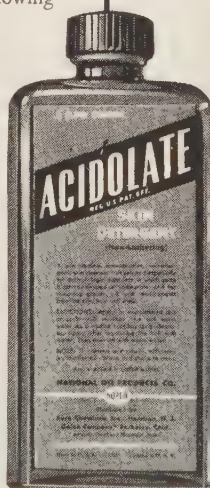
Acidolate, founded on scientific research and backed by extensive clinical experience, offers the following advantages:

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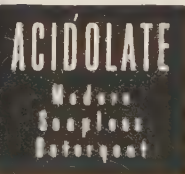
ACNE VULGARIS



Literature and sample to
physicians on request

8 oz. and gallon bottles

*Acidolate is a trademark of
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Health of Children in Russia

Dr. Sofia Markina, director of the Dzerzhinsky Children's Hospital in Moscow, told Russian War Relief representatives, who had made a tour of this four hundred bed hospital, that there had been few cases of poliomyelitis in the Soviet Union since the start of the war. The virtual disappearance of this disease among Russian children was attributed by Dr. Markina to the wide dispersal of these children during the evacuation which took place early in the war.

A decline of rheumatic fever among children was also reported, a decrease which Dr. Markina believed was due to the lack of protein content in Russia's wartime diet. This dietary insufficiency, Dr. Markina pointed out, had, however, created other serious nutritional disorders requiring sanatorium treatment. While there had been an absence of epidemics, as a whole, she stated that a special wartime problem was presented by the increase in malaria carried by children who returned from evacuation points in Central Asia.

The staff of the Dzerzhinsky Children's Hospital, under Dr. Markina's supervision, is now making a study of the effects of wartime conditions on the health of children.

The discoveries of healing science must be the inheritance of all. That is clear. Disease must be attacked whether it occurs in the poorest or the richest man or woman, simply on the ground that it is the enemy; and it must be attacked just in the same way as the fire brigade will give its full assistance to the humble cottage as readily as it will give it to the most important mansion.—Winston Churchill, in *The Lancet*, Mar. 11, 1944.



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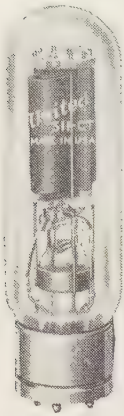
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The New York City Committee on Mental Hygiene of the State Charities Aid Association recently made an extensive study of 623 men who had been rejected for or discharged from the armed forces on account of nervous and mental handicaps or disabilities. The purpose of the study was to determine the kinds and extent of care and help needed for the rehabilitation of these men and the facilities available to meet such needs. An investigation of a typical sample of 314 rejected and 309 discharged men disclosed that only a small percentage of these men were receiving needed psychiatric care and that community facilities for such care were wholly inadequate. The report showed that about eighty percent were found to need some form of psychiatric help, but only about five percent were getting it. Of the 314 rejected men studied, 257 needed psychiatric help; 151, organic medical and surgical treatment; 139, vocational counsel and assistance; 46, neurological treatment; 24, family case work; 15, group or recreational, and 15 educational. Some of the men required more than one kind of treatment or help. The investigation of 309 discharged men showed 235 needing psychiatric help, 184 medical and surgical treatment, 166 vocational, 24 neurological, 31 family case work, 10 group or recreational, and 46 educational.

The study was made under a grant to the New York City Committee from the Commonwealth Fund and was carried out under the direction of a subcommittee on psychiatric needs in rehabilitation, with Dr. Lawrence S. Kubie as chairman. Dr. Sol W. Ginsburg was medical director of the study and wrote the report.

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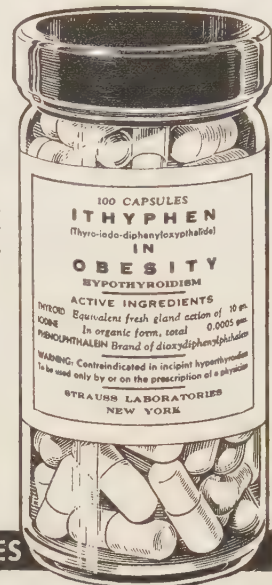
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Industrial Health Programs

Dr. Victor Heiser, chief medical consultant, National Association of Manufacturers, testified before the U.S. Senate Subcommittee on Wartime Health and Education, in Washington, D.C., last September. He said that the committee on healthful working conditions, organized by the National Manufacturers' As-

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sociation in 1937, had instituted a survey on industrial health in 1940. It covered forty-seven states and 2,064 companies employing a total of 1,945,551 workers for the purpose of determining the extent, development and effect of factory health programs. The findings of this survey showed that in those firms operating definite health programs, accident frequency was cut 44.9 percent, occupational disease 62.8 percent, labor turnover 27.3 percent, absenteeism 29.7 percent and compensation insurance payments 28.8 percent. He pointed out that great as the strides made by industrial health practises had been, there was still a need for further efforts especially in those plants employing fewer than five hundred employees. As a result of continuing programs, general industrial health was above the public average, as statistics proved. Figures on wartime absenteeism showed that on the average, sickness and accidents accounted for ten days a year for each employee. Of these ten days, absences resulting from occupational diseases and accidents accounted for only one day. This, he said, clearly indicated that ordinary maladies of a community nature were responsible for more than fifteen times as much absenteeism as trade hazards or other in-plant causes.

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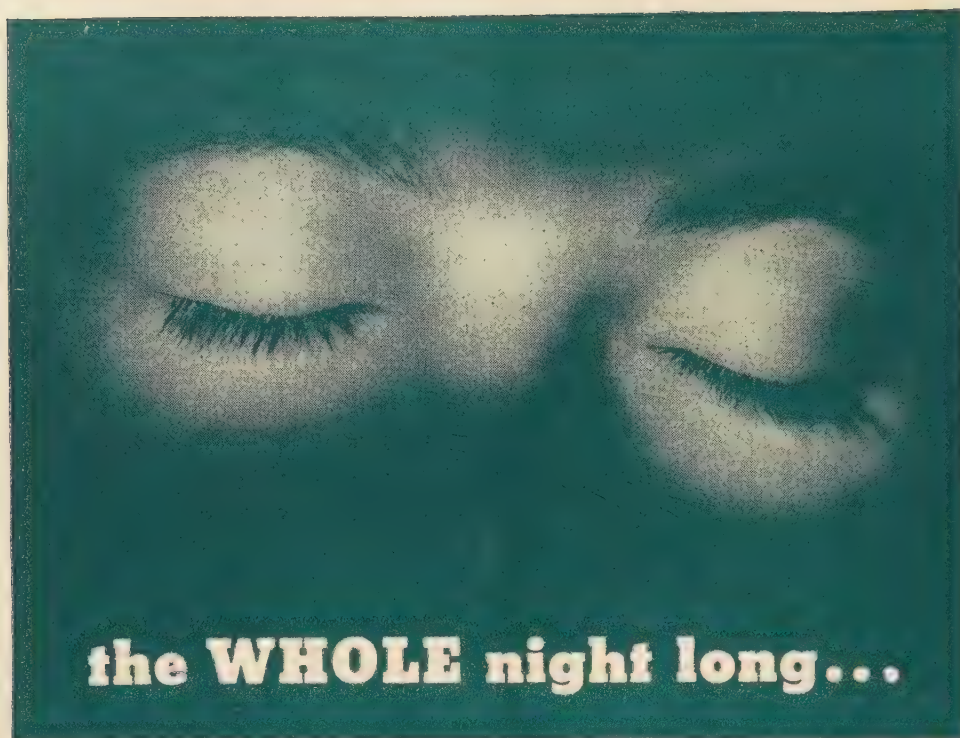
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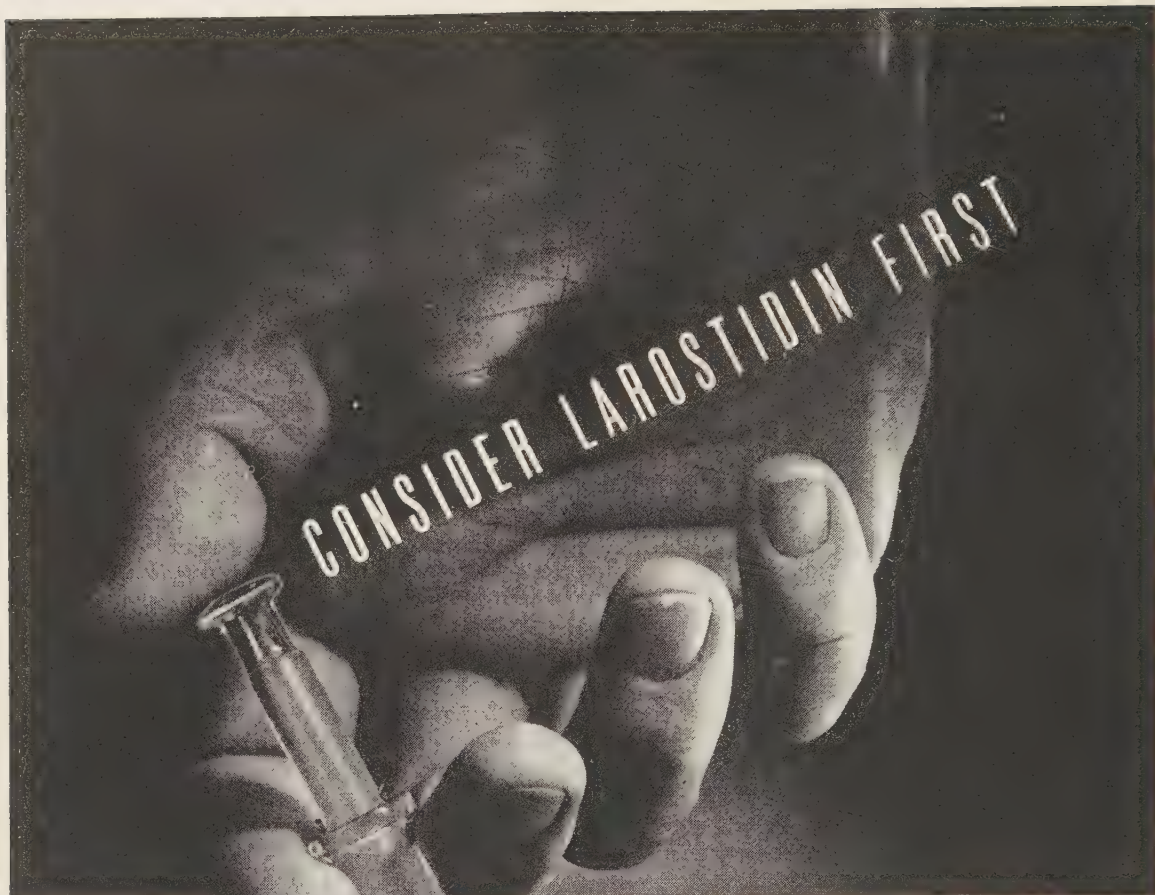


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Temporary Diaphragmatic Paralysis in the Treatment of Tuberculosis

Charles J. Kaufman, Denver (*Rocky Mountain Medical Journal*, February 1945) says that temporary diaphragmatic paralysis, supplemented by pneumoperitoneum, has been found useful in the treatment of pulmonary tuberculosis of the exudative type. He analyzes the results in thirty-seven cases in which the treatment had been used. In this group of patients, who had been in residence in the National Jewish Hospital, Denver, thirteen were excluded from treatment, for various reasons, and in the remaining twenty-four, the x ray findings were predominantly of an exudative nature in all but one, who had a sharply localized fibroulcerative lesion in the right apex. There was some evidence of fibrosis in eleven of the remainder and cavities in ten cases. Six cases were minimal, ten were moderately advanced, and eight were far advanced. In this group of twenty-four patients, twenty-one, or eighty-four percent were benefited to the extent that the sputum became negative by exhaustive examination. X ray examination showed the resolution of infiltrative changes and closure of cavities, and both laboratory and clinical study indicated a subsidence of active inflammatory disease.

The author describes the advantages, disadvantages and hazards of the treatment, pointing out that unaccompanied by full physical and mental rest, the method would probably be of little value. It is his opinion that continuous close supervision over a period of several years is necessary if the benefit obtained from the procedure is not to be lost. When so super-

vised the timely employment of pneumothorax, thoracoplasty or, perhaps, lobectomy in cases still regarded as probably potentially progressive may serve to insure effective control of the disease with less risk of failure than if the latter procedures had been used initially. He emphasizes that unless used with great care and discrimination artificial pneumothorax is a dangerous treatment, which should never be undertaken without preliminary bronchoscopic examination and should never be instituted before careful consideration has been given to the value of other methods.

The author summarizes his conclusions as follows: Temporary diaphragmatic paralysis supplemented by pneumoperitoneum is a useful method in the treatment of pulmonary tuberculosis with predominantly exudative pathology. The pneumoperitoneum should be maintained with a sufficient quantity of air and under sufficient pressure to stretch the denervated diaphragmatic muscle. The patient should be continuously supervised for several years so that control of the disease may be assured or effective application of other surgical measures may be instituted when the disease would seem to be potentially progressive.

Under certain conditions the establishment of a pneumothorax after recovery of full diaphragmatic muscle tone should be considered. Complete physical and psychological rest is an indispensable part of the treatment until the lesion has been definitely brought under control. Cases of pulmonary tuberculosis that are brought under control by the primary application of this method are in a measure protected against the hazards and other disadvantages of pneumothorax and thoracoplasty.



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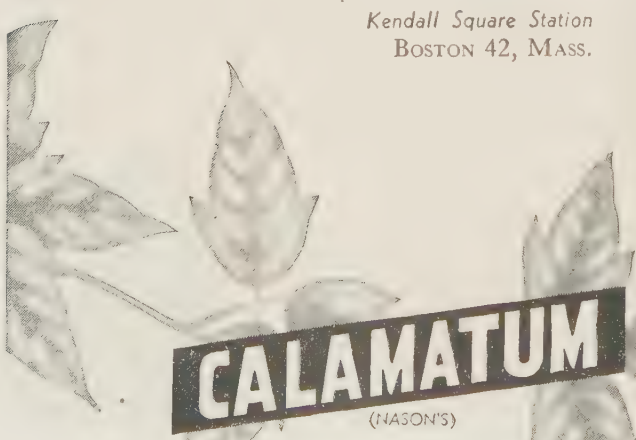
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Open Forum

Evolving the Pattern of Rural Medical Care

T. SWANN HARDING

Falls Church, Va.

Both physicians and laymen have long admitted that rural medicine was not what it should be in these United States. Doctors are generally reluctant to settle in rural regions where hospitals and urban medical facilities are less available than in cities. This is partly because they have been educated to practice with such aids right at hand and partly because they know that the financial reward of practice is likely to be better in the city.

In the country distances are great and relative isolation is common. In consequence, though their way of life conduces to health, rural people have been inclined to be somewhat less healthy than city people, as shown by draft rejections. This is in part because they are deprived of good all-around medical care, preventive medicine and sanitation included. In addition it is not uncommon for farm people to eat unwisely and become malnourished even when they have plenty of good food at hand.

It is quite well known that the Farm Security Administration has been sponsoring group medical plans and organizations in many rural communities where it has clients. It was forced to do this after finding that illness and big medical bills retarded or prevented payments from farm families which had received rehabilitation or tenant-purchase loans. FSA has thus found it cannot rehabilitate rural people merely by providing loans, fostering cooperatives, and giving sound advice on farm and home practices.

In all instances where it has fostered a group medical set-up, FSA has worked in close harmony with the local medical societies. As the local physicians discovered that they were now quite likely to be paid to the extent of eighty percent of their billings for much work they formerly did gratis or not at all, and as they compared with this their customary peacetime collections of only forty to sixty percent of their billings, they were eager to cooperate with FSA. Many of them also were glad to cooperate for idealistic and humanitarian reasons as well.

These medical care groups are set up under a system of trusteeship—physicians, hospitals, and dentists being paid a pro rata share of their billings on a fee-for-service basis. However, it is quite natural that FSA should also experiment with other plans of providing rural medical care. For it has always endeavored to tailor its plans to the needs of localities served and it therefore needs to run a wide variety of trial projects.

Some of these experiments have taken county-wide form. There are now several of these, involving two counties in Texas and one each in Georgia, Mississippi, Arkansas, and New Mexico. All of them except the last, involve getting the doctors to cooperate, and trying to induce as many people in the county to join up as possible, all farmers normally being eligible. The counties selected for these experiments are almost entirely rural. Consequently practically all their inhabitants are eligible.

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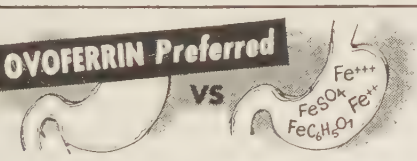
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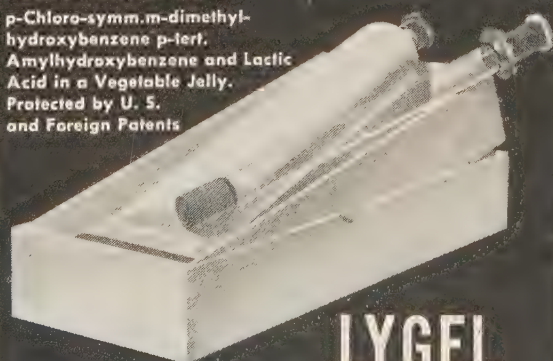
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object to the draining off of individuals whom they regard as able to pay for medical service in the customary manner. It is a fact, however, that group service always proves more economical and efficient than the traditional or horse-and-buggy methods of providing medical care which tradition has saddled on us. It can also be quite as humanitarian in the right hands. Medically, group practice is very effective, because full use is made of equipment and personnel to bring the entire science of medicine to the patient's aid.

In some of the FSA counties nonrural people are now begging for the same medical coverage rural people get. Extension of care to rural people not already its clients is alone a departure from FSA's customary procedure. But its groups are now beginning to accept nonrural people as members. Naturally medical care has had to be subsidized in the experimental counties, both because the people are poor and because the projects are themselves really scientific experiments.

In one of the counties complete medical care is being provided at about \$60 per family per year. This means about \$12 per individual, as farm families are large. Originally members were asked to contribute only six percent of their net income, or a minimum of \$5 per family a year. The actual average was \$6.42, and during the second year the minimum was raised to \$12. Now it is \$18. Dentists are paid in full, hospitals are paid nearly in full, and the doctors get eighty percent of what they bill.

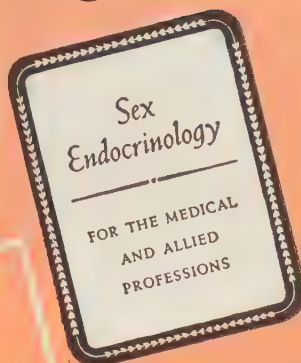
This brings us to Taos County, New Mexico. The FSA experiment here is unique in two respects. For one the county-wide group medical plan has been evolved around well-equipped clinics and subclinics, so located as to give good geographical coverage. For another, the entire staff of the health association—doctors, dentists, nurses, and nonprofessional help—is salaried. Needless to say the entire county is essentially rural, Taos village being the largest settlement.

How did Taos County come to be selected for the organization of the Taos County Cooperative Health Association? The facts that it was wholly rural and that it happened to be well supplied with hospitals for a rural community considerably influenced the decision. Also the Extension Division of the University of New Mexico had made a considerable grant to carry on an over-all county-planning project in Taos County, and better medical care was one thing needed urgently. But the inhabitants had also manifested a desire for better medical care, aware as they were that over sixty percent of them lived and died without ever seeing a doctor, and that their infant mortality, tuberculosis, malnutrition, and other disease rates were very high.

The county is inhabited in the main by Spanish-Americans, who form 96 percent of the population. The remainder divides equally between Indians and Anglo-Americans, with the latter dominating the county's business and professional life. Taos itself has long been a center for artists, writers, and certain wealthy individuals who enjoy its reputed quaintness. There is an Indian Service hospital, the Thomas P. Martin, in Taos Pueblo, a Presbyterian hospital just south of the county, at Embudo, and the Holy Cross Catholic hospital also in Taos.

The last, originally built by a wealthy woman as a home for a prominent woman novelist who never came there to live, was remodeled and equipped as a hospital by contributions from the people of Taos in the 1930's.

WITH OUR COMPLIMENTS



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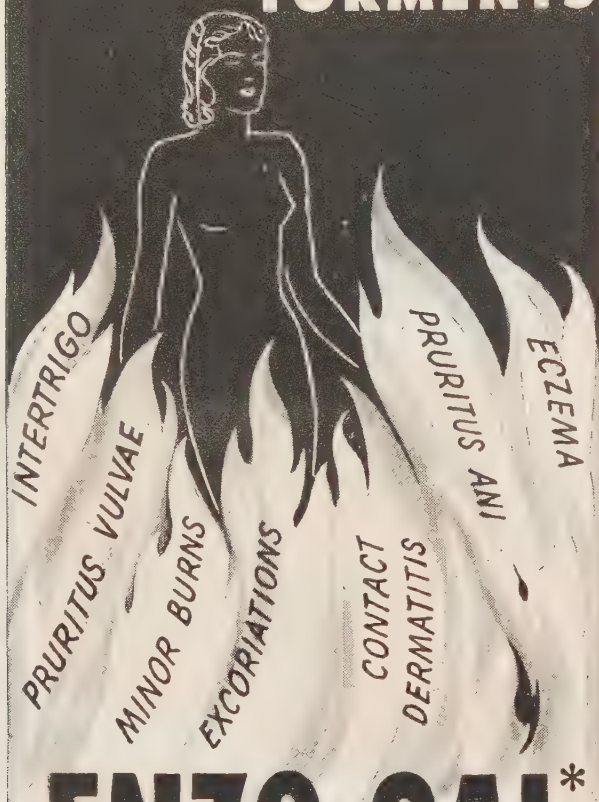
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As the town and the county could not sustain the institution thereafter a Catholic sisterhood took over and has operated the hospital since. Meanwhile the people of the county appealed to the State university and other State agencies for better medical care.

As a result the University of New Mexico instituted special study of the community. Eventually an unincorporated health association was formed and eight hundred families promptly sought to join it. Several agencies and institutions were solicited for financial assistance, FSA among them. Ultimately FSA decided to put in a grant to foster a county-wide experiment in group health and the association was the result. This has grown now till it has more than six thousand members and dependents out of the county's population of fourteen thousand—normally eighteen thousand.

The association maintains its administrative office and its main clinic in rented quarters in Taos. It has transformed a cheaply purchased but very excellent home in Questa into a branch clinic and home for the nurse. It has built a small clinic, now already outgrown, with nurses' living quarters, in Penasco. There are also two subbranch clinics, open a part day weekly with doctor and nurse in attendance, elsewhere in the county. The association has three station wagons in constant use for transportation and as ambulances.

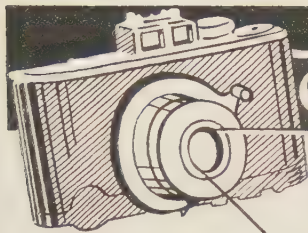
The staff consists of a medical director, two Mexican interns who can practice only under a qualified medical doctor, a part-time physician, a full-time and a referral dentist, four nurses and their capable supervisor, a clerk or so, and a handyman who also drums up membership. The Catholic church also aids ably in membership drives. There is a tie-up with the Proctor Eye Clinic in Taos, and several Santa Fé and Albuquerque specialists are consulted when needed.

The association therefore provides for its members medical care, surgery, hospitalization (by contractual arrangements with existing hospitals), emergency dentistry (extractions and fillings of teeth which are impairing general health), nursing, and specialist consultation. This service is being extended at a rate of about \$72 per family, or something like \$12.50 to \$14.00 per individual, which is extremely low priced.

There has been little or no conflict with the professional men of the county. The association's medical director is an elderly (too elderly, overworked, and, in view of his two coronary attacks, too poor a risk for all this work to depend upon him as it now does) physician of Taos. His salary of \$5,200 is above average for rural doctor's incomes, but he more than earns it, as his services never end. The part-time physician gets \$3,000, and is in private practice the rest of his time.

The nurses earn less here than they could elsewhere, but the nature of the venture and the opportunities for service add tang to the job and they are eager, enthusiastic, and willing. Kindly humanitarianism pervades every function of the association; each patient is treated as a distinct individual; there is no regimentation, no routine mass examination or treatment. Each member of the staff serves far beyond any narrowly limited requirements.

In a sense the association has tended to drain medical facilities and care away from persons who can pay and towards the poverty-stricken bare-subsistence farmers of Taos (two thirds of the families have cash incomes of less than \$250 a year). But that is because the county never had medical equipment or personnel



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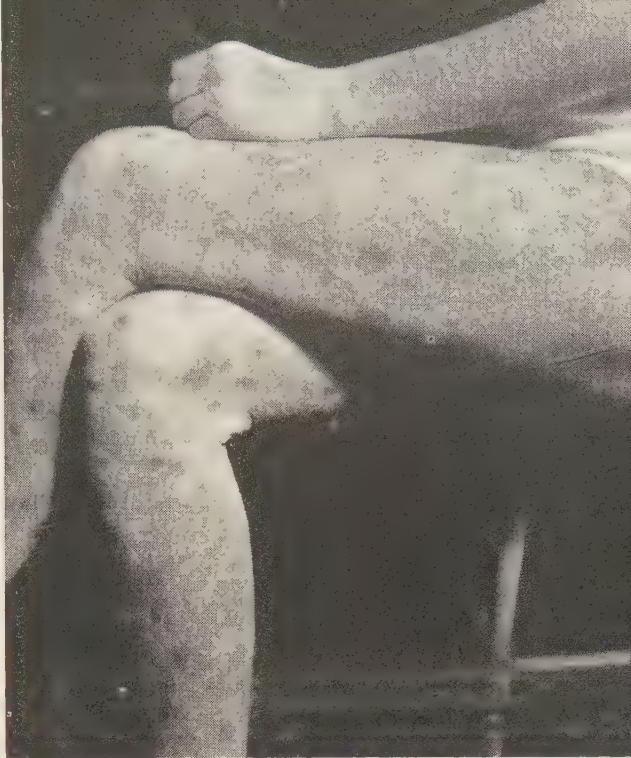
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sufficient to provide adequate care for all of its people all the time. Furthermore, the county's doctors were formerly all grouped in Taos. Nevertheless, not even an income ceiling of \$1,800 (it has been first \$1,200, then \$1,500) for joining the association would draw many patients from the private practitioners of Taos.

Only one physician is hostile to the association. The druggists of Taos did raise objection to the association providing drugs for its patients, which it does as part of the service. Though this objection was unwarranted, as the druggists had never sold pharmaceuticals to these people anyway, the association placated them by routing a portion of the prescriptions through their stores.

The compassion and devotion manifested by the staff make the service unusually good. Insofar as they can, all of them spread the principles of good sanitation, scientific nutrition, and preventive medicine among the people as they go. Just because medical therapy makes so many demands, the staff feels it has not done as much in the way of lay education as it should have. For a while nursing supervision also was neglected, but this lack has now been made good.

The association originally neglected to set high enough salaries to attract better grade professional men when doctors and dentists were more available than during war. The clinic buildings had to be erected under wartime conditions of high costs and scarce labor. The association also needs a maintenance supervisor to cope with breakdowns in its somewhat antique automotive equipment. *Above all, it needs another young, vigorous, idealistic, full-time medical doctor.* For if the medical director collapsed, the Mexican interns could no longer practice, and a disastrous situation would result.

For here we have six or seven thousand people depending upon the Taos County Cooperative Health Association for medical care. This is at present made possible by Government grants which, in monetary terms, mean that we actually expend about \$7 a year on the life and health of these native-born Americans. At the same time a valuable pattern for providing rural medical care is being evolved experimentally.

It is most important that the experiment suffer no premature termination. True, an agency like FSA, which has always been under fire and has frequently faced extinction, cannot plan very connectedly or look very far ahead. Certainly it could not guarantee a five-year grant, when its own financial affairs proceed only year to year as Congress disposes. Yet this experiment should have a grant of that length and in larger amount than the present \$50,000, if it is to be fully successful. The total budget is \$72,000 this fiscal year.

It is unlikely that the people of Taos County can for a very long time fully finance their own medical care, even under an economical and efficient group plan. Their incomes would have to go up a great deal before that became possible. However, starting out by paying only six or seven percent of the total cost, their contributions now amount to approximately twenty-five percent of it. As their superstitions and suspicions are conquered, their incomes increase, and more of them join up, unit costs of operation will decline and the percentage paid by the people should rise.

True these people are unique, but so are the people of every other American locality if we but examine them closely. The Spanish-Americans of Taos are cul-

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turally primitive. Their social organization is patriarchal. But they are slow to change, are superstitious, and many of them greatly fear doctors and hospitals.

However, most rural people have accepted group medical services when available. More often they organize to provide these services for themselves. They tend to be more communal and more readily cooperative than city people. If it is medical care, they care less how it is supplied than how effective and readily available it is.

Here in Taos are people who have lived submarginally for three hundred years. They have eaten a diet deficient in good protein, as well as often in vitamins and minerals. They tend to be dwarfed and physically puny. They have lacked sanitary water supplies, sanitary privies, fly screens. Their infant mortality rate has been 107 per 1,000 live births (as compared with 47 per 1,000 for the country as a whole), traceable mainly to diarrhea and enteritis. A third of their children die before reaching the age of eighteen.

Obviously welfare agencies and institutions for the chronically ill and the tuberculous must carry a heavy burden in such a community. Yet the physical stamina, the disease resistance, and the earning capacity of the people can be improved enormously by proper medical and dental care, and accompanying instruction in sanitation and nutrition. Consequently the FSA grants are in reality investments.

Not only do they pay for sound scientific experimentation in developing a pattern of rural medical care, they save the State and its people money they would have to expend caring for economic failures and the physically incompetent among the inhabitants. Indeed welfare service should contribute to this health project, and, in fact, it is a wonder the experiment has not been taken over by some national institution to use as a nation-wide demonstration.

Meanwhile it goes on day to day, depending upon the continued health of the seventy-four-year-old medical director and the fortunes of the Farm Security Administration. That it is performing a humanitarian and economic as well as a valuable medical service, there can be no doubt.

As State FSA Supervisor Glen Grisham expresses it also: "The native New Mexican must be definitely and unmistakably recognized neither as a peon to be exploited by firmly entrenched economic czars, nor as a part of the local color, to be preserved in quaint, picturesque poverty for the tourist business. He is rather an adult human being, with a congenital right to full participation in the national life, who can make a valuable and unique contribution to the culture of this region."

Germless Island

It is said that the northern island of Novaya Zemlya is germless. Microbes are not found there. Even wild game shot by hunters is germ-free. Sterile dishes with an agar-agar jelly especially suitable for bacterial growth were left outdoors for hours at a stretch, but on incubation no germs appeared. Such a dish would grow germ colonies profusely if exposed to city air for fifteen minutes. Fresh, juicy meat could be left outdoors in an open glass jar, exposed to the elements, but after eight months no trace of rotting could be found. The meat was as fresh as when originally put into the jar. Seems like a great place to live, if you don't mind the cold, isolation and other disadvantages.

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This is one of a series of historical notes, highlighting important achievements in Vitamin Research. Illustration is from unretouched photo-micrograph taken in 1944.



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Early Operations in Appendicitis

To the Editor.—

In the January issue of the *MEDICAL RECORD*, page 22, there is related by William Renwick Riddell, of Toronto, a story about Sir William Osler that interested me very much.

The author refers to a symposium on appendicitis, held in Ontario, in which, during the discussion, the statement was made that the removal of the appendix was safe when the patient was an infant. I am quite sure that this reference to the early removal of the appendix came from a discussion that my old master, the late Dr. Joseph Price, made during that meeting. At that time the medical profession waited until an abscess had formed and then incision and drainage were about all that was performed. Dr. Price took the floor and said that abdominal surgery had advanced to the stage that if the appendix was removed when the cord was tied, the death-rate over the country would be lower than it was at that date with late and inferior surgery.

Of course Dr. Price did not advocate such radical teaching, but the newspapers quoted him as doing so, and he related the following incident to me. When he returned to his office from the Canadian meeting, the first person to come to his office was a lady from the Pennsylvania Main Line. She was holding in her hand the *Philadelphia Press* which contained an article relating to his views about the removal of the baby's appendix. The lady said: "Dr. Price, I see from this morning's *Press* that you are advocating removal of the appendix as soon as the baby is born, and as I have four little children at home who have their appendices, I am very unhappy." Doctor Price said: "Madam, I have seven little children in my home and they all have their appendices", which ended the consultation.

In discussing the early history of the surgical treatment of appendicitis in America, I have related this incident a number of times to show how very early in the history of appendicitis Dr. Price had advocated early operation before there was any pus formation or peritonitis.

Before the classical paper of Fitz of Boston, in 1886, which is given credit for early operation in appendicitis, Dr. Price had performed hundreds of operations for appendicitis, beginning his work in 1878.

No American should write about appendicitis without giving Dr. Joseph Price credit for his early and masterful work in appendicitis and its peritonitic complications. He has had no equal.

J. W. KENNEDY, M.D.
Philadelphia, Pa.

Women Medical Officers

Seventy-four women medical officers now serve in the Army, according to the Office of the Surgeon General. Of this number four are majors, thirty-six are captains and thirty-four are first lieutenants. They have been certified as internists, neuropsychiatrists, obstetricians, gynecologists, pathologists, radiologists and anesthetists, and the Army has given them assignments in line with their specialties at general, regional and station hospitals as well as at the two WAC training centers. Seventeen of these women medical officers are now serving overseas.

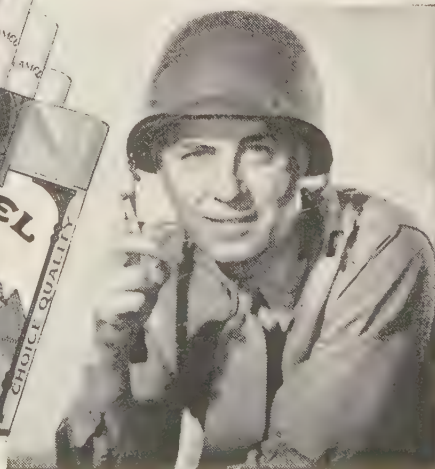
The Army Doctor's Call to Action!

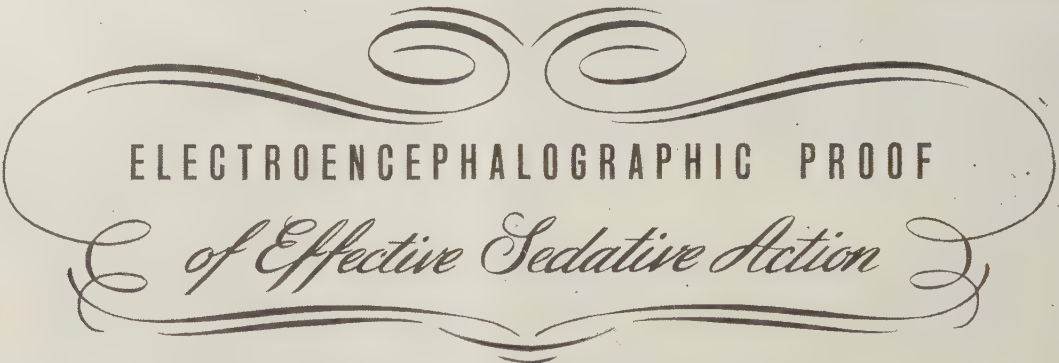
A STRIP of bandage fluttering from a rifle stock... That's the battlefield marker of a wounded soldier... that's the Army doctor's *call to action!*

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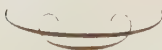
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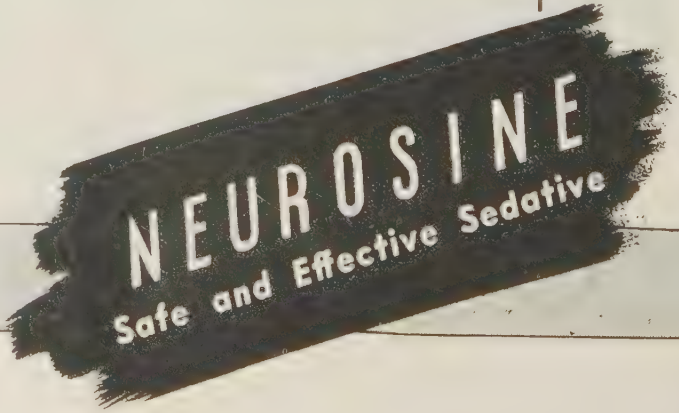
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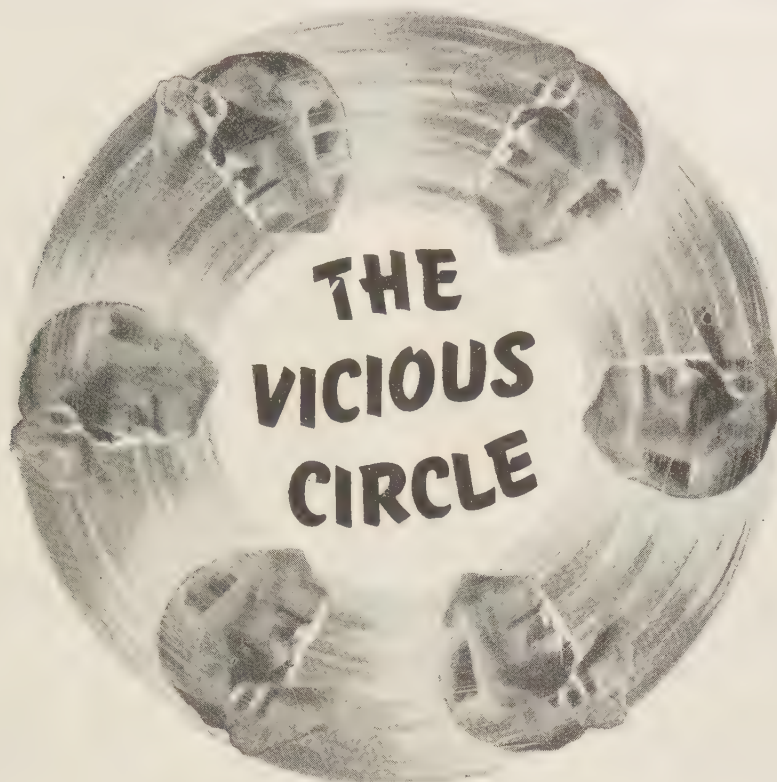
Average adult dose one to two teaspoonfuls with water, repeated as needed, for sedative effect. Limited strictly to prescription use. Supplied in original bottles containing 2, 4 and 8 fluid ounces.



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New Synthesis of Histidine

A new synthesis of histidine, an amino acid occurring in relatively large quantities in blood corpuscle paste, has been developed in the laboratories of the Winthrop Chemical Company, Inc., Rensselaer, N.Y., by Drs. N. F. Albertson and S. Archer, who describe details in a scientific paper to appear shortly in the *Journal of the American Chemical Society*. The same paper will present new methods for the preparation of leucine, amino-isocaproic acid, formed by the digestion of protein and found normally in the spleen and pancreas, and phenylalanine, another constituent of the protein molecule. It is stated that the present method for synthesizing this amino acid, known as the Pyman method, has not been employed to any great extent because of the difficulties involved in some of the steps as well as the large number of steps required. According to the authors, the new synthesis employs fruit sugar as a starting material, and converts the sugar to histidine in a series of four steps.

Medical History of World War II

According to a report from Colonel Albert G. Love, historian of the Army Medical Department, plans have been made to complete the medical history of the second World War six months after victory in the Pacific. Several officers are now assigned to the historical program, approximately half of them serving in overseas theatres. Most of these officers hold graduate degrees in history from leading universities throughout the country. They were commissioned in the Medical Administrative Corps following completion of training in Officer Candidate Schools. These officers are working on the administrative aspects of the medical service including supply, personnel, training, and hospital construction. The professional medical experience of the Army will be recorded by medical officers especially qualified in various specialties.

By means of this well-manned staff, the history of the Medical Department in the current conflict should be completed within the time limit set by Colonel Love. Previous histories published by the Medical Department appeared several years after the cessation of hostilities. Twenty-three years were required to complete the medical history of the Civil War; ten years to complete that of the first World War. Early publication of the current history will be advantageous in that many of the administrative and scientific advances in military medicine will be applicable in planning for national defense and civilian practice. Thus the things which the Army is learning today on the World's battle fronts—improved methods of collection and evacuation of the wounded with prompt treatment, better medical and surgical care, the use of new drugs and appliances, control of communicable diseases, advances in reconditioning—are destined to reach public domain while the knowledge acquired by the Army is still fresh.

At a meeting of historical officers held in the Office of the Surgeon General on December 6th, announcement was made that sufficient volumes would be published to cover the entire scope of the Medical Department's professional and administrative work. Material for the series of volumes is rapidly accumulating from installations in this country and overseas.

Colonel George R. Callender, director of the Army Medical School, stated that excellent reports on missile casualties have been received for the volume on wound ballistics covering several campaigns.

The series of volumes gives promise of being the most complete and revealing chronicle of military medical advances ever compiled. The Surgeon General and other authorities in the War Department are lending full support to the historical project.

Scholarships for Physical Therapists

The National Foundation for Infantile Paralysis has appropriated \$1,267,600 for the training of physical therapists, as a critical shortage of these vitally needed specialists endangers the proper care of infantile paralysis victims. In making this announcement, Basil O'Connor, president of the Foundation, said that present day medical treatment of patients with infantile paralysis demanded more and more physical therapy. A physical therapist was, he said, a technician who used physical agents such as heat, electricity, light, exercise, rest, muscle training and similar methods in contrast to the use of drugs, biological and surgical technics. Today there were only two thousand five hundred qualified physical therapists, of whom more than half were in the Armed Forces. With earlier and more extensive use of such methods of treatment, twice the number already trained could be used for this disease alone. It is estimated that an additional five thousand could be used now, not only for the treatment of infantile paralysis, but also for aiding recovery from many other diseases and disabilities.

The \$1,267,600 program developed under the guidance of a special committee established in the field of physical therapy consists of three parts: \$1,107,000 for scholarships to train new physical therapists; \$82,000 for fellowships to provide additional teachers, and \$78,600 for general development of the field of physical therapy.

Dr. Irvin Abell, Louisville, Ky., is chairman of the Committee and its membership includes Dr. Donald B. Armstrong, New York; Dr. Max M. Peet, Ann Arbor, Mich.; Dr. Morris Fishbein, Chicago; Dr. Arthur L. Watkins, Boston; Dr. M. G. Westmoreland, Chicago; Miss Jessie Stevenson, New York; Miss Lucille Daniels and three representatives of the National Foundation.

Expansion of Army General Hospitals

The Army's expansion of its hospitals by seventy thousand beds is being accomplished through the conversion of existing buildings on hospital grounds rather than through new construction, according to the Office of the Surgeon General. "At many of the general hospitals", said Brigadier General Raymond W. Bliss, assistant surgeon general, "there are well-constructed barracks, built with an eye to the future, which were used to house overseas hospital units during their training period. These barracks are now being turned into wards for patients. Permanent barracks, built to house the hospital staff, are also being converted into wards and are being replaced with temporary barracks which can be quickly constructed". Over fifty thousand more patients are being cared for in the Army's general hospitals than was the case three months ago. During the preceding month about one thousand, two hundred casualties arrived from overseas daily.

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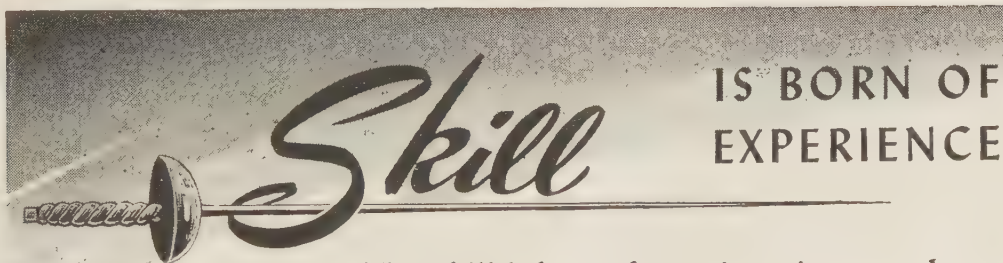
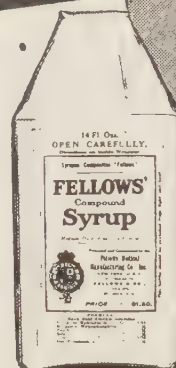
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PENICILLIN: DEMONSTRATION OF ITS VALUE AS A CHEMOTHERAPEUTIC AGENT

Preliminary Report of a New Method

SIR HOWARD W. FLOREY, M.B., F.R.S. and E. CHAIN, M.D.
Oxford, England

As long ago as 1877, Pasteur and Joubert noticed that the growth of certain air-borne organisms inhibited the growth of the anthrax bacillus, and suggested that this fact might be of importance in therapeutics. Since that time, many instances have been found of the production by one microbe or mould of a substance which inhibits the growth of others. These naturally produced antibacterial substances have been called antibiotics. Attempts have been made to utilize antibiotics in medicine, the most noteworthy being that of Emmerich and Loew (1899) who extracted pyocyanase from *Pseudomonas pyocyanea*, and of Dubos (1939) who extracted gramicidin, a mixture of two polypeptides, from *Bacillus brevis*.

Early Work on Penicillin

In 1929 Fleming described the production of an antibiotic by a mould. A mould spore had settled and developed on an agar plate on which staphylococci were growing. Fleming noticed that the bacteria were dissolving in the vicinity of the mould mycelium, and rightly attributed this phenomenon to the production of an antibacterial substance by the mould. He showed that the mould could be grown on ordinary nutrient broth and that after some days the broth acquired the property of inhibiting the growth of many pathogenic organisms, even when it was diluted as much as eight hundred times. The mould was later identified as *Penicillium notatum*. Fleming gave the name "penicillin" to the active broth. He demonstrated that it was not more toxic to animals than ordinary broth and that it had no marked effect on human leucocytes. He used it as a local antiseptic on a few indolent wounds and stated that it "certainly appeared to be superior to dressings containing potent chemicals".

Soon after the publications of Fleming's observations, attempts were made by Clutterbuck, Lovell and Raistrick (1932) to extract the active material from the culture medium, but these met with little success. Penicillin proved to be a very elusive substance, which was destroyed during the manipulations applied for its isolation. After the report of the failure of the first attempts to isolate penicillin no further effort was made to introduce it into medicine, though the crude medium was still used to assist in the isolation of bacteria in

the laboratory. In view of its great instability it was considered improbable that penicillin would ever be of practical value in medicine. There was no evidence in the first descriptions of the properties of the broth containing penicillin from which one could have justifiably concluded it to contain a unique chemotherapeutic agent of the first importance. It is, indeed, impossible to obtain such evidence on any antibiotic without first extracting it from the crude culture medium (which contains substances noxious to the animal body) in a form sufficiently pure and stable to permit a thorough examination of its pharmacological and chemical properties.

Discovery of the Chemotherapeutic Properties of Penicillin

In 1938 interest in penicillin was revived by the present writers. One of us (H.W.F.) had become interested in 1929 in another antibacterial substance, lysozyme, which had been discovered by Fleming in 1922 and, during the subsequent years, this work was continued with various collaborators till the enzyme was purified by Roberts (1937) and its substrate was characterized (Epstein and Chain, 1940). During the latter part of this work we prepared a plan for the systematic investigation of antibacterial substances produced by microorganisms. It was thought that these might be chemically and biologically interesting, especially as many of them were active against pathogenic bacteria. Among the many antibiotics in the literature penicillin, as described by Fleming and others, attracted our particular attention by combining unusual chemical properties with apparently powerful antibacterial action. The fact that it acted against many pathogenic bacteria, including the staphylococcus, heightened this interest. It had been stated that penicillin-containing culture medium might retain its antibacterial activity unchanged for some weeks under certain conditions. This fact justified the hope that appropriate conditions could be found for its extraction from the culture medium and its purification.

The reinvestigation of penicillin was started as a purely academic problem, without any expectation that it would lead to a discovery of considerable practical importance. It soon became apparent that results

would be achieved most quickly by the cooperative effort of a team of scientists with specialized training. We were particularly fortunate in our collaborators. Dr. N. G. Heatley devised a simple and quick quantitative assay method which has proved invaluable in the elaboration of purification processes for penicillin, and in similar investigations on other antibiotics. He also designed and constructed the first large scale laboratory plant for growing the mould and extracting penicillin. Dr. A. G. Sanders later devised and built alternative apparatus for the extraction of penicillin on a larger scale. Dr. A. D. Gardner, professor of bacteriology at Oxford University, collaborated throughout on the bacteriological aspects of the work. The biological investigations were carried out by one of us (H.W.F.) in collaboration with Dr. M. A. Jennings, the chemical and biochemical investigations by one of us (E.C.) in collaboration with Dr. E. P. Abraham. The therapeutic trials on man were conducted first by Dr. C. M. Fletcher and later by Dr. M. E. Florey, with the help of many physicians and surgeons.

Physical and Chemical Properties of Penicillin (Chain et al., 1940)

It was first established that penicillin was an acid which, as the free acid in aqueous solution, was very unstable, but in the form of alkali and alkaline earth salts was stable between pH 5 and pH 7. Clutterbuck et al. had found that penicillin was extracted into ether on shaking with the culture fluid after it had been acidified. When the ether was evaporated, however, the activity was largely lost. This experiment was confirmed, but it was found possible to prepare stable salts of penicillin by shaking the ether solution with dilute aqueous alkali so as to bring the final pH to 7. In addition to ether, a number of organic solvents, for example chloroform and amyl acetate, could be used to extract the free acid form of penicillin. The salts of penicillin were much more soluble in water than in the organic solvents, and therefore penicillin was removed from the organic solvent by about one-fifth to one-tenth the volume of alkali solution. A concentration of penicillin was thereby achieved, and by repeating the extraction several times with different solvents and at suitable pH, a considerable purification of penicillin and simultaneous reduction of the bulk of liquid was obtained.

The losses of penicillin during these operations were small if the solutions were kept cold throughout. On drying the final aqueous solution *in vacuo* from the frozen state, a preparation of a salt of penicillin was obtained, in powder form, which kept its antibacterial activity unchanged for a long time.

Methods of Purification

Chemically, however, the preparation was far from pure, containing, as is now known, not more than a small percentage of pure penicillin. The isolation of penicillin in the pure state from this mixture proved a difficult problem because of its instability towards many reagents and the unfavourable solubilities of the free acid and its salts (Abraham and Chain, 1942). It was found that penicillin was destroyed by dilute acid and alkali, by heavy metals (in particular zinc, cadmium, copper and mercury), and by primary alcohols, ketonic reagents and oxidising agents. The stable

alkali and alkaline earth salts of penicillin were extremely easily soluble in water, and no organic cation forming a relatively insoluble salt with penicillin suitable for purification purposes was found.

The selection for the methods of purification of penicillin was therefore limited to distribution between different solvents and water, and to adsorption methods. Chromatographic methods have been used extensively. In combination with a reduction process with aluminum-amalgam it has been possible by these methods to produce penicillin preparations from which crystalline salts could be made. The purest material obtained at Oxford has an activity of about 1.250 Oxford units per mg., and is capable of inhibiting the growth of certain bacteria at a dilution of about one in fifty million.

Bacteriostatic Properties, Pharmacology, Chemotherapeutic Action in Animals

Once a protein-free preparation containing a stable salt of penicillin was obtained it became possible to examine in detail its biological properties. (Abraham et al., 1941).

For the first biological experiments it is now known that quite crude preparations were used. Their antibacterial properties proved to be the same as those found by Fleming, who used crude penicillin-containing culture fluid. It was noted in addition that *Actinomyces bovis* and the group of anaerobic organisms causing gas gangrene were sensitive, but unfortunately not the tubercle bacillus.

The following bacteria are sensitive to penicillin: *Streptococcus pyogenes*; *Staphylococcus aureus* and *albus* (a small proportion of strains are naturally insensitive); *Streptococcus pneumoniae*; *Streptococcus viridans* (strain variation in sensitivity); *Bacillus anthracis*; *Corynebacterium diphtheriae*; *Actinomyces bovis*; *Clostridium tetani*; *Clostridium welchii*; *Clostridium septicum*; *Clostridium oedematiens*; *Neisseria gonorrhoeae*, and *Neisseria meningitidis*.

Recently the following have been added to the list: *Spirochaetes* of syphilis and relapsing fever, and the virus causing ornithosis.

Penicillin can, of course, be expected to act only in diseases caused by sensitive organisms.

So great was the antibacterial power of even the crudest extracts that at that time—not realizing the extraordinary potency of penicillin—we believed them to be fairly pure. In actual fact we know now that they contained about one percent of pure penicillin. However, on the assumption that they were fairly pure, certain biological investigations were undertaken. It was shown that the extracts were remarkably nontoxic to mice—a twenty gram mouse showed little or no disturbance after injection of ten mg. of the sodium salt. It has since been found that twenty mg. of a much more highly purified extract can be given without any deleterious effects. Not only were the extracts relatively innocuous to the whole animal, but leucocytes and tissue cultures withstood many hundreds of times the concentration needed to inhibit such organisms as the streptococcus. In the light of present knowledge of the gross impurity of the original extracts, one can only be thankful that the mass of impurities, as well as the penicillin, were so little toxic.

Penicillin was readily absorbed in animals after intramuscular or subcutaneous injection, and from the small intestine. It could not of course be given by mouth because the acid of the gastric juice destroyed it, nor by rectum as the bacteria present there inactivated it. It was largely excreted, still in an active form, in the urine of the mouse, rabbit and cat, and to a certain extent in the bile and saliva, though not in the tears or pancreatic juice of the cat. Though penicillin was readily soluble and diffusible, it did not pass in detectable quantities from the blood into the cerebrospinal fluid.

In agreement with Fleming's observations it was found that the action of penicillin was bacteriostatic, in that it merely inhibited the growth of organisms and did not kill them quickly, as did poisonous antiseptics such as proflavine. The respiration of bacteria, as measured in a Warburg-Barcroft apparatus, was not affected by quite strong solutions, in contrast to most antiseptics which, acting on some protoplasmic constituent, rapidly cause the cessation of respiration. This bacteriostatic effect was reflected in the morphological changes undergone by sensitive bacteria when grown in a dilution of penicillin not sufficient to cause complete inhibition of growth. By interference with division giant forms were produced.

Most antibacterial substances, such as ordinary antiseptics and the sulphonamides, are, for one reason or another, not active in the presence of pus, and hence their therapeutic efficacy is severely limited. It was therefore a particularly fortunate property of penicillin that pus, tissue autolysates, blood and serum had little, if any, inhibitory effect on its activity. It was found too that the number of organisms present had little effect on its inhibitory power—again a contrast with the sulphonamides.

In view of this combination of great antibacterial power with low toxicity, it was not altogether surprising that "mouse protection tests" gave a clear demonstration of the chemotherapeutic properties of penicillin. With appropriate dosage almost complete protection was afforded to batches of mice infected intraperitoneally with lethal doses of streptococci and staphylococci and intramuscularly with *Clostridium septicum*.

Early Observation on Human Subjects

It will be seen from this account that a fairly complete knowledge of its properties, both chemical and biological, had been obtained before penicillin was used on man. In terms of the labor involved it was, however, a big step from experiments on mice to making observations on the human subject, for the model produces very little of the active substance. Months elapsed before enough material could be accumulated to try the first injection on man.

Injection in the human subject disclosed that some substance was present in the crude penicillin preparations which caused a rigor and sharp rise of temperature. This had not been suspected from observations in animals. By good fortune the pyrogenic effect was due not to the penicillin but to an impurity which could be removed.

Insufficient material had been accumulated for the first two cases treated; and although both patients, who were seriously ill, did well for a time, they re-

lapsed and further treatment could not be carried out for lack of material.

In the course of some months enough was accumulated (partly prepared in Oxford and partly in the laboratories of Imperial Chemical Industries) to treat by parenteral injection a further eighteen patients. During the course of these observations it became clear that the behaviour of penicillin in man was no different from its behaviour in mice and cats. Toxic reactions, apart from the pyrogen, were not observed and some striking recoveries of patients infected with staphylococci were obtained. Suitable dosage was worked out and the principles of treatment were formulated. Penicillin was also shown to be valuable for local application in various septic conditions.

Clinical Use

Penicillin may be used clinically in two ways:

1. By parenteral administration, as an intramuscular or intravenous injection, given either in three- or four-hourly doses, or as a continuous drip (e.g., Florey and Florey, 1943). The drug is absorbed into the blood stream and distributed to the whole of the body including the infected part. The kidneys excrete the drug rapidly and hence relatively very large doses have to be given to maintain a bacteriostatic concentration continuously.

2. By local application, in solution, paste or powder (e.g., Florey and Williams, 1944). For this method to be successful there must be complete access to all infected tissue and dead tissue such as sloughs or sequestra must be removed. To reach all infected parts and to maintain the penicillin there continuously frequently calls for surgical ingenuity, and success often entirely depends on the skill and resource of the surgeon. For instance, under appropriate conditions wounds which would otherwise be left open may be sewn up and the penicillin instilled through tubes. Local application by injection is also suitable for infections in the meningeal and serous cavities.

The exploration of methods of application is being vigorously pursued and eventually enough data will be accumulated to formulate definite dosages and methods for treating various diseases. At the same time, with increasing quantities of penicillin it will be possible to treat a greater range of diseases, and perhaps some unexpected successes will be revealed.

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PENICILLIN

*Its Usefulness, Limitations, Diffusion and Detection, with Analysis of 150 Cases in Which It Was Employed**

WALLACE E. HERRELL, M.D., DONALD R. NICHOLS, M.D., and DOROTHY H. HEILMAN, M.D.

Rochester, Minnesota

Although penicillin is exceedingly effective in the treatment of some infections, it is ineffective against many others. The susceptible and insusceptible organisms are essentially those listed in table 1. As investigation continues, other organisms undoubtedly will be added to the list.

Both the sodium and the calcium salts have been used for local treatment, but the calcium salt is more satisfactory. For local treatment of wounds involving soft tissue and bone and for topical application to infected surfaces, saline solutions containing 250 Oxford units per cubic centimeter are suitable. In the treatment of severe and extensive inflammatory lesions, uniformly satisfactory results are more likely to be obtained by systemic penicillin therapy used alone or with local therapy.

In the treatment of suppurative intrathoracic disease, such as empyema, it is desirable to supplement parenteral therapy with instillation of penicillin into the pleural space. In many instances, empyema thus can be treated satisfactorily without surgical drainage. For this purpose, as a rule, thirty thousand to forty thousand Oxford units in thirty to forty c.c. of isotonic solution of sodium chloride can be instilled directly after thoracentesis. This procedure is carried out once every twenty-four to forty-eight hours.

In cases of acute or subacute suppurative arthritis, fairly adequate antibacterial amounts of penicillin will reach the articular fluid after intramuscular or intravenous administration. In some instances, the concentration of penicillin in the joint fluid is approximately half that in the blood. If it is desirable to supplement systemic therapy in such cases, penicillin can be instilled into the joint without producing any serious effects. The authors have instilled twenty thousand Oxford units of penicillin in ten c.c. of isotonic solution of sodium chloride directly into an infected joint after aspiration has been performed.

Although penicillin diffuses rather readily into most tissues, it does not reach the spinal fluid after intramuscular or intravenous injection. In cases of infection of the cerebrospinal structures it is necessary to administer penicillin by the intrathecal route at least once daily. Systemic penicillin therapy should be supplemented by daily instillations of ten thousand to twenty thousand Oxford units into the spinal canal. This amount of penicillin usually is dissolved in ten c.c. of isotonic solution of sodium chloride. Both the sodium and calcium salts of penicillin have proved satisfactory for this method of administration.

When penicillin is administered intramuscularly, it is administered every three hours in doses of ten thousand to twenty thousand Oxford units in two to four c.c. of isotonic solution of sodium chloride.

The continuous intravenous drip method of adminis-

tration of penicillin best maintains a constant level in the blood. When penicillin is administered in this manner, eighty thousand Oxford units per day usually will be found sufficient; in many instances, only forty thousand units per day will be necessary. The authors expressed the opinion that one hundred thousand units of penicillin per day is probably the maximal amount

Table 1: Antibacterial Action of Penicillin

<i>Susceptible organisms</i>	<i>Insusceptible organisms</i>
Diplococcus pneumoniae	Eberthella typhosa
Streptococcus pyogenes	Salmonella paratyphi
Streptococcus salivarius	Salmonella enteritidis
Micro-aerophilic streptococci	Shigella dysenteriae
Staphylococcus aureus	Proteus vulgaris
Staphylococcus albus	Pseudomonas aeruginosa
(some strains)	(Bacillus pyocyaneus)
Neisseria gonorrhoeae	Pseudomonas fluorescens
Neisseria intracellularis	Serratia marcescens
Actinomyces bovis	(Bacillus prodigiosus)
Bacillus anthracis	Klebsiella pneumoniae
Bacillus subtilis	Hemophilus influenzae
Clostridium botulinum	Escherichia coli
Clostridium tetani	Staphylococcus albus
Clostridium perfringens	(some strains)
(welchii)	Micrococcus albus
Corynebacterium diphtheriae	(some strains)
Clostridium septicum	Monilia albicans
Micrococci	Monilia candida
Streptobacillus moniliformis	Monilia krusei
Borrelia novyi (spirochete of relapsing fever)	Blastomyces
Treponema pallidum	Mycobacterium tuberculosis
Leptospira	Streptococcus faecalis
icterohaemorrhagiae	Brucella melitensis
Spirillum minus	Plasmodium vivax
Psittacosis virus	Toxoplasma
Ornithosis virus	Vibrio comma

necessary for the treatment of the infections most commonly encountered.

Penicillin is transmitted through the placenta from the mother to the fetus. This has an important bearing on the antepartum treatment of syphilis with penicillin.

Serious toxic reactions have not followed the use of either the sodium or the calcium salt for intrathoracic, intraarticular or intrathecal instillation. Such reactions have not followed the local application or the intramuscular or intravenous administration of penicillin in the doses recommended. Local irritation at the site of injection of either the sodium or the calcium salt of penicillin varies with different batches. Changing the site of administration or changing the product often will terminate this reaction. The only other toxic reaction of any significance is the occurrence of urticaria and irritative dermatitis. The latter reaction is seldom observed. Febrile reactions may occur if the penicillin employed is not pyrogen free.

Fleming's adaptation of the Wright slide-cell technic is the most reliable method of determining the concentration of penicillin in the serum.

*Abstract of an article which appeared in the *Journal of the American Medical Association*, 125:1003-1011 (Aug. 12) 1944.

Of 150 patients who had infections owing to a variety of bacteria, 103 were treated with the sodium salt of penicillin and forty-seven with the calcium salt. The calcium salt is handled more easily and appears to be more stable. Among twenty-eight patients suffering from bacteriemia, most of whom had resisted sulfonamide therapy, twenty-five recovered and three died. At present, eighty thousand units in twenty-four hours appears to be the most satisfactory dose in cases of bacteriemia.

Other bacterial infections for which the authors have used penicillin include bacterial endocarditis, severe cellulitis, postoperative wound infection, osteomyelitis (acute and chronic), gas gangrene, infections of the urinary tract, meningitis, pulmonary suppura-

tive disease and a small group of miscellaneous infections. The results with 107 patients (one of whom was counted twice) could be considered brilliant or satisfactory; doubtful results or failures occurred with forty-four.

The use of penicillin should not be attempted in the treatment of gram-negative bacillary infections, including undulant fever, tularemia, influenza, infections due to the colon-typhoid-dysentery group or infections due to *Klebsiella pneumoniae*. Infections of the urinary tract due to gram-negative organisms do not respond to penicillin. It has not proved useful in the treatment of tuberculosis, acute rheumatic fever, lupus erythematosus, pemphigus, mononucleosis, leukemia, ulcerative colitis, malaria or blastomycosis.

OXYGEN THERAPY

Preliminary Report of a New Method

WARD T. VAN ORMAN, B.S., and ROBERT R. HAYS, M.D.

Akron, Ohio

Technique of Oxygen Therapy

By Ward T. Van Orman

The need for oxygen in the human body was first demonstrated in the free balloon flight of Coxwell and Glaisher from Wolverhampton, England, September 5, 1862. Records indicate that at twenty-nine thousand feet Glaisher lost consciousness and Coxwell barely managed to valve enough gas to cause the balloon to descend to the safety of the lower altitudes.

On April 15, 1875, the French balloonists, Tissandier, Sivel and Croce-Spinelli ascended from Paris in the balloon Zenith. They were supplied with 150 liters of oxygen in rubberized containers to counteract the anoxemia encountered at the higher altitudes. Paul Bert, the famous physiologist, declared the amount of oxygen they carried to be woefully inadequate. The craft reached twenty-eight thousand feet where Sivel and Croce-Spinelli lost consciousness and died from the lack of oxygen. Tissandier alone survived. The irony of the flight was that the meager oxygen supply was untouched. Here we record the first fatalities from anoxemia. Paul Bert recognized the need for further research in low pressures and in 1878 his *La Pression Barometrique* appeared which won for him the title of "Father of Aviation Medicine".

The progress of aviation in the last two years has given a tremendous impetus to the application of oxygen. The present human ceiling with one hundred percent oxygen is thirty-eight thousand feet. With positive pressure types of masks, the human ceiling may be lifted to forty-five thousand feet. For higher altitudes there is only one safe method, that is pressurizing the entire body. With this principle any altitude may be achieved in safety and without discomfort. It also follows that in oxygen therapy, pressurizing the entire body will counteract even the more serious cases of anoxemia which are beyond the range of the oxygen tent, mask, or positive pressure mask.

The problems of higher altitudes were in process of solution by the late Dr. George Crile at the time of his death, collaborating with the author. As an outgrowth

of the work with Dr. Crile a new technique in oxygen therapy has been made available.

From an engineer's viewpoint, it appears that life is dependent on food, water and air. One may live weeks without food, days without water, but without air death arrives in six to twenty minutes. It naturally follows that wherever anoxemia is present, a logical remedy is to increase the oxygen intake into the blood. Such cases may be pulmonary disorders, carbon monoxide poisoning, other toxics, shock, shortness of breath, substitute for transfusions, heart conditions, asthma, intoxication, and insomnia. In fact, wherever additional oxygen is needed the new method affords a mechanism applying the oxygen under pressure, avoiding the limitations of the oxygen tent, oxygen mask, and positive pressure mask.

In discussing problems of the troposphere and stratosphere with Dr. Robert R. Hays, of Akron, he pointed out that in some of his patients the evidence of anoxia was present as a secondary effect of exposure to toxic fumes. Dr. Hays agreed that an oxygenation cylinder would offer an effective means of combating this anoxemia and suggested a series of test cases.

The oxygenation cylinder (Fig. 1) was originally developed for counteracting certain reaction in stratosphere flying. It is conical shaped with spherical end, seven feet long. A longitudinal opening of five feet is provided by an air tight zipper. Inspection windows four inches in diameter, permit visual observation of the patient and help prevent claustrophobia. A gauge of 0 to five pounds registers the internal pressure and a pressure regulator provides automatic pressure control. It has been found that two pounds pressure above atmospheric is comfortable if the patient swallows frequently to alleviate the effect of pressure changes on the ear drums. Pure oxygen is used and a flow sufficient to carry away the carbon dioxide through purging. The average treatment lasts forty minutes, though some were extended to an hour. The oxygenation cylinder weighs but fourteen pounds and may be wrapped up in a carrying case ten inches in diameter and twenty

inches long. A standard two hundred cubic foot cylinder of oxygen with conventional regulator is recommended.

Cooperating with Dr. Hays I have had the opportunity of witnessing the transition of several of the subjects from listless, silent individuals to vital personalities. These transitions have been much too rapid for any factor of suggestibility to color the picture seriously. Also the extent of the improvement was so marked it left no doubt about the permanency of the cure.



FIG. 1.—Oxygenation cylinder.

Attention is directed to the relationship of absorption of oxygen by the blood in the lungs and pressure. The rate of oxygen absorption by the blood in the lungs is directly proportional to the partial pressure of the oxygen in contact with the surface of the lung or the alveolar pressure. With the mask or tent the rate of absorption is limited to essentially atmospheric pressure. In the oxygenation cylinder the rate of absorption may be increased beyond that which is now currently used. Hence we have a new tool for oxygen therapy, impressing oxygen not only on the lungs but on the entire surface of the body under controlled conditions. In the new oxygenation cylinder all one needs to do is to close a zipper and turn on the oxygen supply slowly. About one minute should elapse in bringing the cylinder up to two p.s.i. An automatic control valve maintains the pressure at the desired value. At the conclusion of the treatment one minute should elapse in decreasing the pressure to atmospheric before opening the zipper and removing the patient.

Clinical Findings in the Therapeutic Use of Oxygen By Robert R. Hays, M.D.

The use of oxygen and mixtures of oxygen and other gases, notably helium and nitrogen, has shown a marked increase during the past few years. During World War I its use as a therapeutic agent was chiefly in the treatment of victims of war gases, and in the treatment of severe pneumonias. However, at this period oxygen was seldom given to pneumonia victims until they were *in extremis*. In the early days of its use as a remedial agent, the expense was quite considerable and possibly was a factor in preventing wider application.

During the past twenty-five years great advances have been made in techniques. Wider spheres of usefulness have been found. Aviation, diving and medicine have benefitted.

The work of the late Dr. Crile, Ward Van Orman and others has benefitted immeasurably the science and art of high altitude flying.

In diving, Hoppe-Seiler, Bucquoz, and Paul Bert pointed to the explanation of caisson disease. Hill explained the action of nitrogen in the form of bubbles in the tissues which are the direct cause of the lesions in caisson disease.

In medicine a host of investigators have been busy. A. H. Smith, of New York, introduced a medical air lock for the Brooklyn Bridge workers. Haldane, Douglas and Henderson made an exhaustive study of altitude sickness and anoxemia. Their studies were made on Pikes Peak. They pointed out the process of acclimatization. In this phenomenon the alveolar CO₂ dropped from 40 to 27 mm pressure. There was also a marked increase in hemoglobin and red cells. This amounted to one hundred and twenty to one hundred and fifty percent increase.

The use of oxygen in treating poisoning by industrial gases, such as carbon monoxide, carbon bisulphide, benzol and naphtha solvent (a mixture of crude benzene, toluene, and xylene), has been common and well recognized. Its use in the treatment of diseases has also been well studied. Pneumonia, bronchial asthma, acute bronchiolitis, emphysema, pulmonary fibrosis, laryngospasm, severe pulmonary edema, etc., have shown good response. It has been used in certain obstructive lesions of the tracheobronchial tree since it is thinner than air and flows more readily through a narrowed orifice.

For some time I have been observing a form of illness among the rubber workers which has been alarmingly on the increase since the recent advent of synthetics. Its cause is, without doubt, the inhalation of toxic substances. These are—to mention a few of which we know—carbon tetrachloride, benzol, naphtha, carbon bisulphide, di-methyl ketone, alcohol, etc.

The symptoms are, to enumerate the outstanding ones, nausea, vomiting, dizziness and weakness, with the mental findings of confusion, loss of memory for recent events, occasionally also for remote events, difficulty in making arithmetical calculations, emotional depression, vague and ill defined fears, with definite delusional trends which range from ideas of hopelessness and despair to poorly systematized ideas of a paranoid character. Delusions of infidelity are rather common. The patients are unfit for work.

In November, 1943, I visited the Philadelphia Institute for Research to find, if possible, some form of treatment. Dr. Ziegler, the chemist, ventured the opinion that the basic difficulty was a partial loss of oxygen combining power of the blood due to the fact that the toxic substances formed compounds with the hemoglobin. He suggested long periods of vacation away from the locality.

Shortly after this Mr. Van Orman and I were talking about the use of oxygen by the balloonists and stratosphere fliers. It occurred to us that it might be possible to force the hemoglobin to carry more oxygen by placing the patient in a positive pressure oxygen chamber. A suitable chamber was secured and treatment begun in a few selected cases.

There has been little in the form of precedent upon which to act. After we had begun the treatments we found reference to an article by End and Long of Marquette University, who, in 1942, experimented with laboratory animals—subjecting them to near lethal doses of carbon monoxide, then using oxygen

under pressure as a means of restoring them. The report would indicate very good results. They propose this method for use in the human for treating carbon monoxide poisoning. We have had no opportunity to test such a case but feel that it would be of definite benefit.

The literature on oxygen is voluminous but we have not yet encountered mention of this method of treating the more chronic cases of poisoning by the various fumes which are present in industrial plants and which seem to be growing more numerous and more complex chemically.

The patients were selected on a purely clinical basis. The three cardinal points were: 1, history of exposure to the fumes; 2, the physical findings of cyanosis and some pallor; 3, the mental symptoms as mentioned above.

The experimental nature of the method was explained to the patients and they, almost without exception, were happy to cooperate. There is a natural reluctance on the part of some people to get into a small closed space; in others a definite claustrophobia. We have not had any cases of panic or demands to be released.

Eleven patients have been treated by this method. Five of these were *bona fide* cases of toxicity from the inhalation of fumes and six properly belonged in other categories. I shall quote briefly the records.

CASE I.—R.R.R. This patient first came for examination on October 24, 1943 with complaint of weakness, lack of ability to concentrate, and lack of interest in his work. In fact, he had been unable to do any useful work for about one and one-half years. His former occupation was that of rubber worker and he was in the departments in which he was exposed to the various fumes. Several things were tried, such as liver extract injections, tonics of various sorts, long walks in the fresh air, etc. On examination, he was pale, almost pasy in color, with poor muscle tone; there was a certain degree of cyanosis of lips, nails and skin. A general physical examination failed to reveal any outstanding lesion.

On December 16, 1943, he was placed in the oxygen cylinder for forty minutes at two pounds pressure. It could be easily observed through the windows of the cylinder that the cyanosis began to clear almost at once. Upon removal the evidences of cyanosis had all disappeared. The skin and mucous membranes were perfectly normal in appearance. There was much more pep and vigor than formerly. By January 20, 1944, he had had four treatments and there was a great deal of improvement in energy, appearance, and mental reactions. He was eating and sleeping much better and there had been a weight gain of fifteen pounds. On February 1, 1944, he was doing some work fixing his home, doing odd jobs, and was able to walk several miles each day. There was quite a bit of weakness, however, in his arms.

CASE II.—Mrs. A.H., aged thirty-seven, a housewife and rubber worker, had worked on self-sealing gas tanks, and in the course of her work she inhaled various vapors and fumes. She was first seen on November 18, 1943. She came upon the insistence of her husband because she was depressed, irritable and nagging. She also had definite suicidal ideas. She felt herself a burden to her husband and wanted to go away.

General physical examination was negative except for cyanosis.

In the beginning she was treated by a high vitamin regime and estrogenic hormone, with no apparent results. On December 4, 1943, she was placed in the oxygen cylinder for forty minutes at two pounds pressure. While in the apparatus the cyanosis could be observed to clear up in skin, lips and mucous membranes. Upon removal, she complained of a sense of dizziness lasting about one minute, then stated that she felt much better both physically and mentally. In all, she received four treatments from December 4 until December 21, 1943. Improvement was not noticeable in the mental reactions although there was also general physical gain. This continued and on January 4, 1944, she was given permission to return to work. She was seen twice since that time—on January 8 and January 13, 1944. She seemed able to handle her work and, while not entirely emotionally balanced, was adjusting much better to an unfortunate home situation.

CASE III.—P.W., male, aged thirty, an electrician in a factory, had been working twelve hours, from 6:00 p.m. until 6:00 a.m. His work required him to be around vats from which escaped various fumes, and for probably four hours out of the twelve he inhaled these vapors. Frequently he became nauseated and dizzy. Recently his wife had noticed a definite change in his behavior. He stated that he had become dull, listless, and inefficient at his work. He was nauseated and dizzy. Ideas of reference and persecutory ideas had developed. He was sure that he had not done his work right and that the F.B.I. were after him. Physical and neurological examinations were negative except for the cyanosis and grayish appearance of mucous membranes and skin.

On December 7, 1943, he was placed in the cylinder for forty minutes at two pounds pressure. On being removed he looked at his wife and asked, "Where the heck did I get all those crazy ideas". This, however, was not the end of his troubles. According to the brother the ideas seemed to recur after about four days. On December 14th the treatment was repeated. On January 11, 1944, he again came for treatment. There was considerable clinical improvement both mentally and physically. On January 17 and January 21, 1944, he again came for treatment. At the last visit his wife reported that there had been a marked improvement for the better. He is attempting to find work at his former occupation and his reactions and behavior are approaching his normal self. He has not been seen since.

CASE IV.—H.B., male, aged fifty, a supervisor in aircraft sub-assembly, worked with paints and paint thinner. About August 25, 1943, he became weak, nervous, irritable, unable to concentrate on his work, and developed the idea that certain persons in his department had it in for him. There were vague and ill defined fears. He came to my office October 26, 1943 with the above mentioned complaints. At that time he was unable to sleep and there was practically no appetite. Examination revealed a well developed adult male with no positive physical findings other than some cyanosis and some muscular weakness. He was advised to rest for a period and to secure as much fresh air as possible. He was also advised to take a high vitamin

diet and was given capsules containing large doses of the vitamin B complex. He continued to show a little improvement. On December 21, 1943 he was given treatment in the oxygen cylinder for the usual time, and on December 30, 1943, he was treated again. After each treatment he mentioned that he felt exhilarated, much as if he had taken a drink of whiskey, and that at about bedtime he became so sleepy it would have been an impossibility to stay awake. Little was seen of him until January 11, 1944, when he appeared at the office and stated that he would like to return to work. At that time he seemed much more alert and his appearance was that of health. He was given permission to return to work.

CASE V.—Mrs. Mary C., aged twenty-eight, married, a housewife, had worked for the past two years in bullet proof tanks. At this work she said she had inhaled many fumes which she could not identify. She did recognize carbon tetrachloride, however. For about the same length of time she had been dizzy, seemed all right as long as she kept moving at work, but became dizzy, weak and sleepy when she went out into the fresh air. There had been some confusion, with memory defects. She was emotionally unstable and had crying spells and had been so cranky that her boss had advised her to see a physician. Physical and neurological examinations were negative. Her blood pressure was 130/90. She was given treatment by the oxygen cylinder for thirty minutes at two pounds pressure. The reaction was as usual. She experienced quite a feeling of relief. The cyanosis disappeared and she remarked that almost immediately her head felt less confused than it had for a long time. She returned to work and has continued at work ever since.

The following cases are not in the category of toxic conditions, per se.

CASE VI.—J.B., aged fifty-eight, chemist in soap factory, was referred by Dr. Taylor because of mental and emotional depression and some difficulty in thinking. The history of this case was to the effect that in September, 1943, the patient had suffered a rather severe hemorrhage from the bowels, following which his blood count dropped to one million or thereabouts (this is the patient's statement). He said that all symptoms dated from that time. Dr. Taylor reported that he had made rather thorough studies of this patient just recently and that he was unable to uncover any organic basis for his complaints. These were many and varied—chiefly of indigestion and vague aches and pains, as well as some mental confusion, inability to do his work properly and to plan work for members of his department. The blood pressure was 130/80, peripheral vessels were soft, eye grounds negative. Neurological examination was negative. The only outstanding physical sign was a rather marked degree of cyanosis of face and lips, and some blueness of nails. I was not sure that he had been exposed to any volatile toxic substances but felt that his general reactions and the rather marked cyanosis warranted the use of oxygen.

Accordingly, the patient was treated as mentioned above on January 24 and 29 and February 1, 1944, at two pounds pressure for forty minutes. (Blood count on February 1, 1944 showed an entirely normal count.) After each exposure he felt a great deal relieved of the symptoms. He continued at work all the time. No

report has been had since February 7, 1944, at which time his wife reported that he was feeling fine.

CASE VII.—A.M., aged forty-eight, married, a mechanical engineer balloonist and inventor. He was first seen in 1940 at which time he was suffering from a rather severe emotional depression from which he recovered after several weeks without hospitalization. At that time physical findings were negative except for an old injury to the right foot. He came in again on January 27, 1944, because he feared a return of his former illness. There was a sense of mental fatigue and weariness and an inability to organize his work as well as previously. An outstanding feature of the first illness was an insomnia which resulted in the patient practically existing without sleep. On the above mentioned date he was placed in the cylinder for forty minutes at two pounds pressure. He experienced some relief from the seeming lethargy but the striking feature was that he became naturally sleepy soon after the treatment and for the first time in months had a full night's rest. Reports since indicate that he had continued to sleep much better than before. He returned recently for another treatment, but this was not given because of an acute rhinitis.

CASE VIII.—L. H., a young woman, aged 17, was first seen on February 25, 1942. At intervals since that time I have seen her at the request of the mother and the maternal grandmother. It was my opinion that she was suffering from major hysteria and was possibly a potential case of dementia præcox. On November 29, 1943, she was brought to the office by the grandmother who was accompanied by a young man who said he knew Louise and had found her in the street in a confused state. She professed not to know her name or home address, nor to remember any of the happenings of the past twenty-four hours. She was placed in the cylinder for forty minutes at two pounds pressure. There were no immediate results, although she stated she felt better generally. Several days later she was seen. At that time she reported that she had slept well the night of the 29th, and that the following day she felt perfectly normal and that mental functions apparently were normal. She has been working ever since.

CASE IX.—L.T., a woman, aged thirty-five, was first seen October 5, 1943, at which time she was extremely nervous, sleepless, and unable to work on account of the extreme degree of weakness and tremors. Basal metabolism rate, urinalysis, blood sugar and nonprotein nitrogen were within normal limits. Serology was negative. The most troublesome symptom was insomnia. On February 1, 1944, she was placed in the cylinder for the express purpose of determining, if possible, the effect. She was placed in the cylinder for forty minutes at two pounds pressure. She retired at 10:00 p.m. that evening, slept until 9:00 a.m. the following day, awoke, ate breakfast and slept until 2:00 p.m. that day. This was without sedation or medication of any sort other than the oxygen.

CASE X.—T.L.E., a registered nurse, with no particular complaints, was placed in the cylinder for twenty-two minutes at two pounds pressure. There was quite a change in the appearance of the mucous membranes during and after the treatment. She experienced no dizziness upon removal from the cylinder and there was no difference in sleep. This was explainable perhaps, as she had never had any trouble sleeping.

CASE XI.—B.D., a medical secretary, with no complaints, was placed in the cylinder for twenty-two minutes at two pounds pressure. There were no complaints upon removal from the cylinder. A later check showed that sleep was unusually good the following night. This was quite a change, since sleep ordinarily was none too sound.

Both the nurse and secretary remarked about the ease with which they breathed while in the cylinder.

Summary

In presenting these clinical findings to the Cleveland Clinic group, I believe I speak for both of us when I say that we are not so bold as to believe that we have perfected a form of treatment. Much work needs to be done to determine the limitations, the spheres of usefulness, in short, the true value, if any, of this method.

We do claim for ourselves originality in devising the method, as at the time we were not aware of the work of End and Long, and of Barach, Martin and Eckman.

The problem which prompted the first work was that of the industrial worker, sick from the inhalation

of various vapors and fumes which are rapidly becoming more common in industry.

We have noticed certain things which are almost entirely clinical and have endeavored to set them forth.

1. The method as used is apparently free from danger.

2. Clinically at least, cyanosis and the external evidence of anoxia can be made to disappear.

3. It is a more easily controlled method of giving oxygen than either tent, face mask or nasal catheter.

4. Since the oxygen in the blood is in direct proportion to the alveolar pressure it becomes apparent that it is possible by this method to force more oxygen into the circulation than would be the case by other methods.

5. While this was begun as a treatment for toxic conditions, we feel that it may be found of value in a wide variety of conditions.

6. Last but not least, in insomnia it apparently works unusually well.

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RADON AND PHYSICAL THERAPY

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Introduction

Radon is the first product of the disintegration of radium. It is a gaseous substance, emitting chiefly the alpha rays. By a later disintegration process, beta and gamma rays are also emitted. The amount of these beta and gamma rays in alpha ray therapy is so infinitesimal that their significance for clinical purpose may be ignored.

The alpha rays are corpuscular, positively charged heliumatom nuclei. They are relatively large and penetrate the surrounding medium over a very short distance, the air, for instance, about three inches, human body tissue 0.1 mm. Even a thin sheet of tissue paper will completely absorb the rays. Therefore, we may consider the alpha rays as harmless, but due to their immense energy, equal to about eight million electronvolts¹, they are a very powerful therapeutic agent.

The radon does not enter any chemical reaction, but is soluble in different media, best in fats and olive oil. We used radon in ointment in our experiments.

Alpha ray treatment is one of the oldest forms of physicommedical treatments known, administered for centuries. We are referring to the spas which contain radon in their water. The quantities in the water are small, but the whole atmosphere is permanently charged with emanation and minimal quantities of radon are inhaled continuously. In the United States, the most famous emanating baths are Hot Springs in Virginia and Hot Springs in Arkansas. Their radon content is almost as much as that of the world-famous Spa Gastein in Austria, but much less than the radon content of Oberschlema in Germany and Joachimsthal in Czechoslovakia.

Radon activity decreases 0.75 percent every hour, i.e., it loses one-half of its activity in less than four days. The radon is completely eliminated from the body in

a short time, usually two to three hours². The accepted measurement in alpha ray therapy is the electrostatic unit (ESU), equaling 364 millimicrocuries. The measurement is important, the effect depending a great deal on the exact dosage. Small doses stimulate biological processes, while strong doses destroy human tissues. We also have to consider the fact that the radiosensitivity of different tissues varies. The most sensitive tissues to radon are the glands, especially ovaries and testes.

In alpha ray therapy, small doses are administered, and, therefore, the effect is a stimulating one. Experiments with different plants proved that emanation increases oxidation within the tissues. The alpha rays expelled from the radon in ointment have a great local and a certain general effect. The penetrating power of alpha rays being very weak, the radon has to be brought in direct contact with the skin or mucous membrane. (It should be mentioned that radon can be taken internally, since it does not enter any chemical reaction and is soluble in almost any human tissue, and is totally eliminated after a few hours³). The ointment penetrating the superficial layer of the skin, carried by the pores into the deeper tissues through a mechanism of micro capillarization, produces also there the alpha radiation and a little part of the radon gas enters by means of the capillaries the circulatory system of the whole body. The presence of alpha rays can be detected in the exhalation a few minutes after the external application. An erythema will appear locally after several applications or using one strong dose, which simulates the erythema caused by ultraviolet treatments. There is no danger of damage to the skin, even if, surpassing the limit, small blisters are visible, and interrupting the treatments clear the skin without any post damage.

²MEYER, STEFAN: *Strahlentherapie* Bd. 58. 1937.

³KLINGHOFFER, STEFAN: *Amer. Jour. Roentgenol.*, February 1943.

Generally speaking, radon causes a hyperemia and has an analgesic, antiphlogistic and epithelizing effect. The indications are practically the same as those of the roentgen surface therapy. The best known conditions in which radon in ointment is indicated, are indolent



Fig. 1.—Case III. Lateral and anteroposterior view of left wrist joint.

ulcers of unknown etiology, x ray damages, burns and keloids, which Uhlmann describes in many reports and considers radon ointment as almost specific in the treatment of skin injuries caused by roentgen rays, beta and gamma rays. He goes so far as to conclude that all such cases in which properly exerted alpha ray therapy does not lead to complete healing, carcinomatous change must be suspected, even if the lesion does not appear so clinically. After a study at the Skin and Cancer Unit of the New York Postgraduate Hospital, extending over a period of more than two years, Isaak came to the conclusion that results are excellent in treating chronic eczemas, lichen, neurodermatitis and other chronic skin conditions. It is especially interesting to learn of one patient whose condition healed under radon ointment, while other treatments, including x rays, were unsuccessful. The Mayo Clinic reported the outstanding effect of the alpha ray therapy. Dr. Henry H. Jordan also reported good results in the treatment of joint diseases.

Besides the broad field in dermatology, radon is successfully employed in many other fields, especially in neurology, gynecology, internal medicine and in combination with surgery.

We were interested in treating patients suffering from orthopedic conditions, not, or very slowly, responding to conservative and physical therapy. These included bursitis, tenosynovitis, osteoarthritis, epicondylitis, periarthritis and synovitis, myositis, neuritis, rheumatoid arthritis and other localized painful conditions.

Our experiments were made under the following conditions: 1. The majority of cases underwent physical therapy. Radon ointment applications were administered only in case of unsatisfactory results. 2. No other therapy was employed while radon ointment was administered. (These conditions do not apply to our private practice.)

The following case histories are typical in a series of thirty-five patients treated with radon in ointment in

the physical therapy department of the Hospital for Joint Diseases over a period of about one year:

CASE I.—L. K., male, aged fifty-five years. The patient complained of pain in both knee joints, especially the left one. A cataract operation had to be postponed, because the patient could not lie in bed for more than two hours without suffering from severe pains. Diathermy, baking and massage were unsuccessful. The patient walked with a limp. There was no swelling of the joints, but there was extreme tenderness on pressure over the medial aspect of the left patella. Motion was restricted.

X ray showed spurring of the upper aspect of the left patella, and soft tissue swelling anterior to the lower end of patella. Laboratory findings were negative; sedimentation rate, 1 mm. Diagnosis, osteoarthritis, periarthritis.

There was complete restoration of function of the left knee joint after eighteen radon applications. There was no pain. The patient's cataract was operated on, and he went back to work. Thereafter, twelve more applications were administered to his right knee joint, with the same excellent result.

CASE II.—A. P., female, aged forty-seven years. The patient had complained of pain in the left knee joint for more than six months. Examination showed periarticular swelling of the left knee, and the patient walked with a left-sided limp. Motion of the knee showed some grating, and there was tenderness over the anterior aspect of the knee. X ray photographs showed the presence of moderately advanced hypertrophic arthritis and synovitis.

Treatment: Eighteen diathermy and massage treatments were given without relief. Thereafter, seven radon applications greatly improved the condition of the patient.

CASE III.—E. O., female, aged forty-one years. The patient complained of pain in the left wrist, with swelling. Examination disclosed a large ovoid area of soft

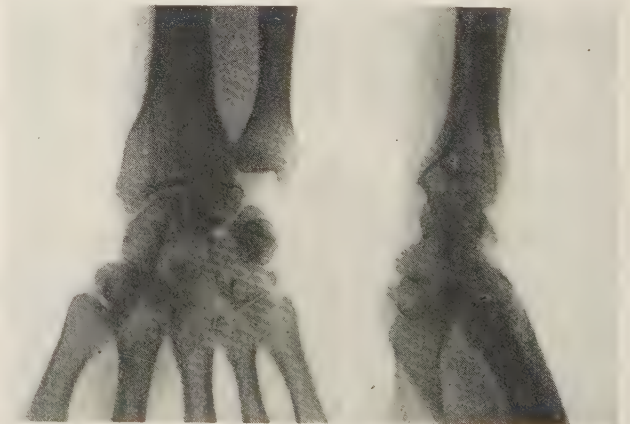


Fig. 2.—Case III. Left wrist joint after radon treatment.

tissue calcification anterior to the medial aspect of the distal end of the radius. All the osseous structures showed moderate decalcification. This shadow was clearly seen in the lateral view and also in the anteroposterior view (Fig. 1). The shadow was about the size of a bean and of equal density. At the Orthopedic Department, excision of the calcified mass was advised, but the patient did not want it at that time. She was referred, therefore, to the physical therapy department

for treatment. Laboratory findings were negative; uric acid was normal.

Treatment: After ten radon ointment applications pain and swelling entirely disappeared. A control x ray was negative (Fig. 2).



Fig. 3.—Case V. Calcification of left subacromial bursa.

CASE IV.—W. T., male, aged forty-six years. The patient complained of severe pain in his left knee joint. He had been disabled for four years, and had not been relieved by several series of diathermy treatments. Examination disclosed that the patient walked with a limp; great tenderness on pressure existed on both sides of the patella. X ray findings were negative. Diagnosis, chronic synovitis left knee.

Treatment: The patient received nineteen applications of radon ointment. His condition improved after six treatments, considerably after twelve treatments, and he went back to work completely relieved after nineteen treatments.

CASE V.—A. A., male, aged fifty-six years. The patient complained of pain in the left upper extremity, which had existed for many years. He had not obtained relief from previous physical therapy treatments and numerous Kirkavin injections. Examination showed markedly restricted motion, and extremely painful. X ray showed calcification of left subacromial bursa (Fig. 3). Laboratory findings were negative; sedimentation rate, 20 mm.

Treatment: After nine radon ointment applications the patient was completely relieved and was discharged. A control x ray was negative (Fig. 4).

CASE VI.—B. P., female, aged thirty-eight years. She had complained of severe pain on the inner side of the right elbow for over one year, and had received no benefit from physical therapy. Examination disclosed swelling of the joint, but no limitation of motion. There was marked sensitivity of the internal epicondyle of the right humerus. X ray and laboratory findings were negative.

Treatment: Two novocaine injections gave temporary relief. In starting treatments the patient suffered severe pain. After four radon ointment applications she was completely relieved.

Summary of Hospital Cases

DIAGNOSIS	NUMBER OF TREATMENTS	TOTAL DOSAGE ¹	RESULTS
Bursitis subacromial	6	12,000 ESU	excellent
Bursitis subacromial	12	24,000 ESU	moderate
Bursitis subacromial	9	20,000 ESU	excellent
Bursitis pretrochanteric	12	24,000 ESU	greatly improved
Bursitis pretrochanteric	12	24,000 ESU	improved greatly
Tenosynovitis	4	6,000 ESU	greatly improved
Tenosynovitis	7	14,000 ESU	improved
Tenosynovitis	3	6,000 ESU	moderate
Tenosynovitis	12	24,000 ESU	moderate
Neuritis	4	8,000 ESU	greatly improved
Osteoarthritis	10	28,000 ESU	excellent
Osteoarthritis	4	10,000 ESU	greatly improved
Osteoarthritis	18	40,000 ESU	excellent
Osteoarthritis	18	36,000 ESU	improved
Osteoarthritis	7	14,000 ESU	improved
Osteoarthritis	12	24,000 ESU	moderate
Epicondylitis	4	8,000 ESU	excellent
Epicondylitis	2	4,000 ESU	excellent
Epicondylitis	3	6,000 ESU	improved
Epicondylitis	4	8,000 ESU	excellent
Epicondylitis	10	20,000 ESU	improved
Epicondylitis	12	24,000 ESU	moderate
Epicondylitis	12	24,000 ESU	negative
Epicondylitis	4	8,000 ESU	excellent
Periarthritis	19	40,000 ESN	excellent
Periarthritis	18	40,000 ESN	excellent
Periarthritis	12	26,000 ESU	excellent
Periarthritis	7	14,000 ESU	improved
Periarthritis	12	26,000 ESU	moderate
Rheumatoid arthritis	12	24,000 ESU	negative
Myositis	12	26,000 ESU	moderate
Dupuytren's contracture	4	8,000 ESU	negative
Tissue calcification	10	20,000 ESU	excellent
Osteoporosis	10	20,000 ESU	excellent

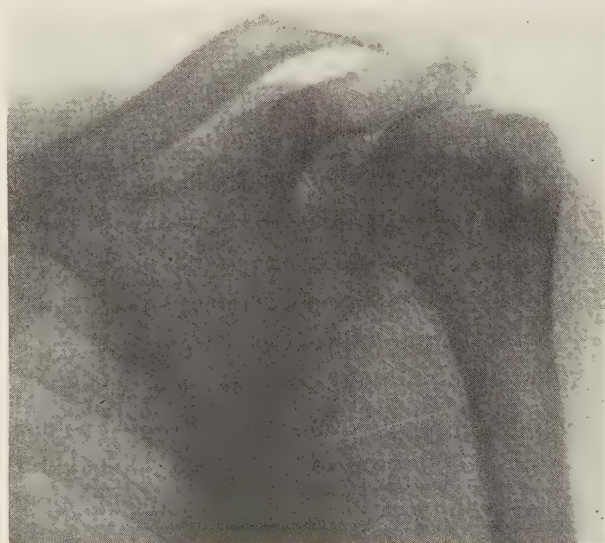


Fig. 4.—Case V. Left shoulder joint after radon treatment.

¹Radon ointment with a strength of two hundred electrostatic units per cc. was applied in each case; e.g., six treatments, each ten cc. x two hundred electrostatic units per cc. gives a total dosage of twelve thousand electrostatic units.

In addition, forty-two private patients were treated in the office. The radon ointment treatments were combined with physical therapy, massage, novocaine infiltrations and proteolac injections. Radon was applied twice, later once weekly.

DIAGNOSIS	NUMBER OF CASES	RESULTS
Neuritis	5	3 completely relieved 1 improved 1 negative
Epicondylitis	8	all completely relieved
Osteoarthritis	9	pain relieved almost completely in 6 cases, 1 improved, 2 did not respond
Periarthritis	4	3 completely relieved 1 improved
Bursitis	7	5 completely restored 2 remained limited in motion, but without pain
Tenosynovitis	4	3 completely relieved 1 improved
Meniscus lesion	2	1 completely relieved 1 negative
Rheumatoid arthritis	3	3 greatly improved

We have had no experience in treating the so-called "painful heel", described under different names as tarsalgia, plantalgia, calcaneodynia, and by Bettmann, as calcaneitis. This condition was also studied by Kolbe who arrived at the following conclusion: Calcaneus spur is without significance regarding the pain, as long as the exostosis is anatomically composed of healthy, bony tissue. Syphilis, gonorrhea and arthritis are also negligible. The painful heel is usually associated with a phlebitis of the saphenous veins and to a lesser degree caused by a chronic periostitis of the os calcis. This condition is stubborn, results obtained with radon ointment seem to be superior to other treatments, but failures are not infrequent.

Conclusion

Radon ointment applications are effective in the majority of chronic inflammations of joints, including bones, capsule, tendons and bursæ. The administered doses were relatively small. A standard preparation of radon in ointment was exclusively used, containing two hundred electrostatic units per cc., of ointment, applied twice weekly in amounts of ten to twenty cc. According to the number of applications, the total dosage used ranged between four thousand and forty thousand units. The technique applied was described by Jordan (5), who also reported excellent results. However, we never went as far as Jordan, who sometimes used fifty cc., of radon in ointment for one application, leaving it for thirty-six to forty-eight hours. Strong skin reactions were observed even in the relatively

small doses used. It is unpredictable when an erythema will appear and how intensive it will be. The pigmentation of the skin does not serve as a guide. As a matter of fact, strongest reactions were observed in colored people.

As mentioned above, the erythema is the criterion of effectiveness, i.e., if the patient has no or unsatisfactory relief, in spite of the appearance of a strong erythema, further applications have no effect. We found it advisable to apply radon again in these cases after a rest period of at least three weeks and to combine it with physical therapy. The results were often surprisingly good.

In forming an opinion, we have to consider one outstanding fact: Radon ointment applications are unimpressive. The administration of an ointment, absolutely neutral in color and odor and not causing immediate skin irritation, seems to be unsatisfactory to the patient. The attitude of the patient is rather negativistic, and there is hardly one who does not suggest another therapy if he has no relief after the first application. Therefore, we always inform the patient before the first application of radon of the character of the treatments and when an improvement may be expected.

The question is still open whether radon ointment therapy has a place on the side of superficial x ray and Grenz ray therapy. The fact remains that radon may be administered at any office, at the bedside of the patient, and without any machinery. Furthermore, the results compare favorably with x ray treatments, and the radon ointment therapy can be used when x ray treatment is not desirable or contraindicated; e.g., near the ovaries and testes. It must be emphasized that no damage to the exposed tissues was observed.

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5 WEST EIGHTY-SIXTH STREET

LOWER BACK PAIN

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There comes a time when every branch of specialized medicine or surgery has to take stock in studying carefully the labeled diagnosis put away on its shelf as taken for granted without question. However, it does often happen that certain bundles of knowledge, tucked away after keen scrutiny and examination, somehow bear the wrong label or diagnosis.

In order to come to the truth which is synonymous

with scientific medicine, specialists in different branches of medicine should confer constantly. If this is not encouraged, each specialty of medicine tends to become limited to a narrow sphere and thus loses even its own standing in the medical world. The field of medicine and surgery has many component parts, interwoven and held together by chains and links on which the entire structure depends for its strength. If the smallest

link loses its connection with another, then the weakness is felt throughout. For this reason, the aim of every modern internist or surgeon, whatever his specialty may be, should be, above all, a proper diagnosis.

One sometimes wonders why in this day and age of civilization and science so many people flock to the unscientific practitioner or the so-called cults of medicine. In this stage of knowledge and enlightenment, why does scientific medicine fail to meet the needs of such a common ailment as lower back pain? Why do these patients, thousands of them, pass the door of the orthopedic surgeon, who is a scientific medical man, and search for a medical cultist to obtain a massage or an adjustment for relief? The answer is simple and pathetic; scientific medicine has failed to bring about a permanent cure, so palliative relief is being sought from whatever source it may be obtained. While scientific medicine fails to cure permanently, the cultist reaps his reward in giving to those sufferers some relief by means of palliative treatment, such as massage and baking, which increases the circulation of the parts involved.

One of the most common of human ailments, lower back pain, usually diagnosed as sacroiliac or lumbosacral, has given more spoils to the irregular practitioners, who treat by the use of massage and adjustment of the vertebra, than any other known ailment.

Reviewing the modern works (papers or text books) on lower back pain, one notes the many causes given, such as tumors, inflammation, specific disease, mechanical derangement due to trauma or congenital malformation; misplaced pelvic organs (such as retroverted uterus), and, noted recently, ruptured or misplaced intervertebral disks. All the above enumerated conditions are true scientific causes of lower back pain. However, the most common cause of lower back pain is almost always ignored or omitted.

The orthopedic surgeon may be excused for this omission for he says that he is considering the etiology only from an orthopedic point of view. The gynecologist may have the same excuse. However, this seems to be no excuse for the patient suffering from lower back pain who wants a cure. And what is the excuse of the general surgeon or the internist who looks at scientific medicine from a broader point of view? The only excuse for all of them apparently is that our proctologists have so far failed to realize the importance of high seated internal hemorrhoids in relation to lower back pain, and, if you please, also to so-called sciatica pain. Therefore, it would really be too much to expect from the other practitioners when the proctologist unconsciously leaves out this symptom of lower back pain as one of the cardinal symptoms of hemorrhoids.

He, too, may be excused for he is basing his assertion on the results he has obtained from the average hemorrhoidectomy. Since the patient is suffering from lower back pain after the operation or even the antiquated method of injection, the foregoing statements must be unscientific. However, the truth is that the average hemorrhoidectomy in about thirty to forty percent of the cases does not remove high seated hemorrhoids. The same applies to the injection method, because the hemorrhoids are not sclerosed properly.

Blond's therapy and basic principle have been reported recently in the *MEDICAL RECORD* and also in the *Journal of the National Proctologic Association!*

Therefore, since backache, the common human ailment, which is commonly diagnosed as of lumbosacral or sacroiliac origin, after all other findings have been found negative, is being referred to the orthopedic surgeon for treatment, this paper should serve as a reminder. If a patient does not respond to his general treatment, it is not the fault of his specialty of orthopedic surgery, for this branch of medicine, as any other branch of medicine, has its limitations.

Not every case of lower back pain can be considered as being caused by internal hemorrhoids. It goes without saying, however, that in all these cases the patients must have a complete physical examination, and all the cases mentioned above should be ruled out by physical and x ray studies. However, a rectal examination with the proper proctoscope (Blond) is more than essential in these cases.

It often happens that the x ray may show some pathological condition at the iliosacral or lumbosacral points. Even in these cases or, I should say, especially in these cases where and when these parts of the human anatomy, already scarred by disease, are more sensitive to outside pressure from hemorrhoids, hence resulting in lower back pain or so-called sciatica pain. This can be illustrated as follows:

A patient complains of pain in the abdomen after a cholecystectomy, and the case has been diagnosed as postoperative adhesions. This diagnosis may be correct, but the pain is not caused by the adhesions *per se* unless there is a pulling on the adhesions. This pulling is caused by gas (generally found in the cases due to hemorrhoids). The same is explained in these so-called lumbosacral or sacroiliac pains, especially with an x ray showing some hypertrophy. Pain is due in these cases to pressure on some of the nervous network supplying the neighboring areas.

This explanation may sound foreign to some, therefore, I have taken seven cases at random—patients who came to the clinic or office complaining of lower back pain with or without slight symptoms which would make one suspect rectal varicosities. However, on physical examination, hemorrhoids were demonstrated by Blond's proctoscope.

These hemorrhoids were treated by the injection method of Blond or sclerosing them. It is remarkable how these symptoms of lower back pain and so-called sciatica pain generally start to fade away gradually from the first treatment. Cure is generally established after the full sclerosis of these varicosities.

Case Reports

CASE I.—F. W., male, aged fifty-two, June 25, 1938. The patient's chief complaint was sciatic pain on the right side and fistula in ano, for which an operation had been performed five years before and was apparently healed. Examination revealed internal hemorrhoids. The patient received thirteen treatments.

This case illustrates the relation existing between anal fistulae and hemorrhoids which is generally overlooked, and also the referred symptoms of sciatic nerve involvements which are often treated as sciatica proper without results.

CASE II.—S. E., female, aged fifty-four, March 17, 1939. The patient's chief complaint was pain in the lower part of the back and belching of gas; constipation was marked. The results of a physical examina-

tion, including urine and Wassermann tests, were negative. A rectal examination showed internal hemorrhoids. This patient received eleven treatments from March 17th to August 14th with good results. On October 1, 1941, the patient complained of lower back pain, with the other symptoms, and she was given nine more treatments, at intervals, up to December 15, 1942. She is now symptom free. She required more treatments than the average case because the intervals between treatments were much longer than a week, which is the time allowed in the average case.

CASE III.—L. V., female, aged twenty-nine, June 22, 1942. The patient's chief complaint was pain in the lower part of the back. She said she had had a perirectal abscess some time ago. Physical examination, including a vaginal examination and a urine test, was negative. This patient, a waitress by occupation, said that before she was a waitress she had had the same pain, therefore the condition was not due to her work. It is remarkable that this patient improved after the first treatment, and after the second treatment, her record read "backache absent or very slight". After receiving the third treatment the patient stopped the treatment. Apparently she discharged herself because she was free of the chief symptom that brought her into the office.

CASE IV.—B. S., male, aged thirty-three, January 2, 1942. The patient's chief complaint was pain in the lower part of the back. Physical examination, including a urine test, was negative. Because of gas and dull pain in the epigastric region, a gastrointestinal series was taken which proved to be negative. A rectal examination showed the presence of hemorrhoids. This patient stated that he had less pain in the back after the first treatment of the hemorrhoids. This symptom, as well as the other symptoms, subsided after five treatments.

CASE V.—M. P., male, aged forty-one, April 20, 1943. This patient's chief complaint was acute pain in the lower part of the back. He was seen for the first time at home on account of the back pain which forced him to go to bed. At the first visit, local applications were prescribed and rest in bed. On April 23, 1942, physical examination at the office, including a urine test, was negative. The patient was strapped. A rectal examination showed internal hemorrhoids, and the first treatment given for them. An x ray of the spine showed hypertrophic change in both sacroiliac joints. On the second visit, one week after the first treatment, the pain in the back had subsided. This patient received six treatments up to June 1943. The pain in the lower part of the back subsided and improved gradually, as well as the other symptoms, such as pruritus ani, but the back pain was the chief symptom which forced him to go to bed and he had then come to the office for treatment.

CASE VI.—L. C., male, aged twenty-five, March 10, 1943. The patient's chief complaint was a sore back, which had lasted about one year. He was always tired, especially on getting up in the morning, which is typical of rectal varicosities. Physical examination was negative, including the urine. Rectal examination revealed internal high seated hemorrhoids.

I report this case, although the patient did not return for treatment. However, because he had no other symptoms which would make one suspect or look for rectal varicosities, there is no doubt that he would have

received excellent results for the lower back pain had he been treated.

CASE VII.—F. D., female, aged fifty-eight, June 15, 1943. Her chief complaint was pain in the left upper hip, described by the patient as a troubling pain, and pain in the epigastric region. Physical examination, including urine and Wassermann tests, was negative. This patient reported one week after the first treatment that the pain (in the left hip joint) had almost gone. Because she received marked improvement this patient followed up the treatment until she received the sixth treatment on July 21, 1943. Treatments were given at weekly intervals.

Some explanation must be made as to the fact that in some cases, as in Case II, the patients required about twenty-one treatments, while in Cases III and VII, there were remarkable results after the first or second treatment. The answer is, that since the pain is caused by pressure of some particular dilated vein, the pain lasts as long as this particular hemorrhoid has not been sclerosed. On the other hand, there may be hemorrhoids and without lower back pain or sciatica, just as there may not be constipation or any of the other common symptoms. However, if there is lower back pain and sciatica, generally if the patient suffers from rectal varicosities, these dilated veins must be sclerosed thoroughly to render permanent scientific treatment effective.

The patients are always instructed to come for a check-up after six weeks, six months, and at the end of the year. Therefore, if patients, after receiving marked improvement or cure after the average course of six to ten treatments, fail to follow instructions and do not report, it is concluded they feel well.

Summary

I do not wish to convey the idea that all back pains are due to internal hemorrhoids. However, it is true that in every case where faulty posture, pes planus, and focal infection have been ruled out and no permanent cure established, internal hemorrhoids should always be thought of. Before these patients fall into unscientific hands, one should make certain that they do not suffer from rectal varicosities.

If this paper, with its seven reported cases, will help to bring scientific treatment to some case of lower back pain, I shall have good reason to be satisfied.

736 HANCOCK STREET

Red Cross Expands Whole Blood Program

In response to urgent requests from the Pacific battle area for more whole blood, the American Red Cross is extending the West Coast whole blood project to include San Diego, Calif., and Portland, Ore., and at the same time, the procurement of whole blood in San Francisco, Oakland, and Los Angeles is being stepped up. With this addition, all West Coast centers will be procuring whole blood as well as plasma. Definite whole blood quotas have not been set, because the amounts required vary according to military needs. Each Center will regulate whole blood procurement according to the need at the time, and the rest of the blood will be processed into plasma, which is also urgently needed. Whole blood is used primarily in hospitals and aboard hospital ships to supplement the use of plasma in the front lines.

Editorials

Penicillin

One of the most constructive measures taken by our government has been the backing, financial and otherwise, given to the producers of penicillin. The amount of money invested in the marvelous drug in all of the penicillin plants in this country was less than the price of a small battleship.

The speed with which the producers of penicillin accomplished their goal is truly remarkable. Scarcely a month went by when improvements were not made and no one dared hope, when the projects were started somewhat over a year ago, that such large scale production would be made possible. The government not only helped furnish capital for many penicillin plants but cooperated all along the way in facilitating the acquisition of needed supplies and equipment and aided in many ways in improving the methods of production. We also must not neglect to mention the splendid work done at Stanford University, the University of Wisconsin, and the University of Pennsylvania where new strains of the organism producing penicillin were developed, new culture media were worked out, and improved methods in fermentation and recovery made available to the producers.

Penicillin is now being made available for civilian use which means that sufficient quantities have been made for military requirements and that the medical profession and the public will now get the benefit of the energy, cooperation and effort which has been manifested by the manufacturers, the government and the various scientific agencies who have been more than helpful. A long step forward has been accomplished in combatting many of the ills of mankind by capturing and utilizing penicillin, one of the simplest elements of nature.

Limitations of Penicillin

Recently the doctor's mail has been fairly flooded with offers of penicillin because of its "release" by the Government on March 15th. Some concerns have solicited advance orders with the promise of sending a bill for later payment.

There is danger of a wild scramble to put penicillin in everything one eats, drinks or rubs into the skin, and we may anticipate lozenges, cough medicine, chewing gum, mouth washes, laxatives and skin cream "impregnated" with penicillin. Such efforts will vitiate the real value of penicillin which now bids fair to become one of the great discoveries of our time or of any other time as a life-saving agent. In fact, its amazing potency

has been demonstrated by hundreds of clinicians when a patient was *in extremis* from commonly fatal diseases such as meningitis and cavernous sinus thrombosis. Fortunately the "reactions" from it are limited to skin rashes or mild toxic manifestations which may have been due to impurities rather than to the "drug" itself. The National Research Council has the power, and doubtless will exercise its good offices to set forth the facts concerning proper and improper usage. Governmental authority may also be exerted to control the future of penicillin as it has controlled its past.

It is well to keep in mind the contraindications as well as the indications for administration. Just now the indications seem to be to some minds anything and everything from falling hair to ingrowing nails. But so far, we know that it is valueless in virus infections (which is extremely regrettable), and in gram negative infections such as undulant fever, psittacosis, tularemia, tuberculosis, typhoid fever, malaria, leukemia, blastomycosis, ulcerative colitis, rheumatoid arthritis and certain other afflictions. The list is not yet complete. However, some progress has been made in treating with the sulfa group (sulfadiazine), usually by mouth, and injecting penicillin into the muscles synchronously. We then have a sort of two-way means of combatting some disorders, which do not yield to either agent when used alone.

One must remember too how germs have a way of self-defense against our best efforts to kill them or render them inert. There have been statements to the effect that organisms may become penicillin-fast, but under just what conditions is not quite clear. We know that prolonged use of a single agent or drug seems to meet with resistance so that the effect "wears out" and we have to "change to something else." The science of bacteriology is still relatively new, and the study of germ growth and life, while fascinating, is fraught with difficulties and misinterpretations. The biology of disease germs is a subject which, doubtless, will yet attract a group of young and enthusiastic investigators far beyond its present status.

At the present time we do know that penicillin is highly potent in local infections (cellulitis), and when systemic signs appear from transference to blood and lymph streams, bacteria are held in check until the natural defenses of the body can conquer the enemy. In sinus thrombosis, meningitis and brain abscess, timely surgery is made effective and ultimately completely successful where penicillin is used intravenously or intramuscularly, but it must be given frequently or in large doses or by continuous "drip" methods. In other words it is promptly eliminated through the emunctories, and efforts are now making to increase its length of stay in the body. It is especially useful in meningitis which long has been regarded as almost

uniformly fatal. Aural surgeons know this only too well, and they are loud in their praise of the new ally. However, penicillin seems not to enter the cerebrospinal system from the blood, or if it does, not in sufficient concentration to become bacteriostatic. Therefore, intrathecal administration becomes necessary in many instances.

In osteomyelitis, organisms which live and thrive in bone must be reached by surgery, local "soaking", and through the blood and lymph pathways. The time of sequestration is shortened, the end results are then highly pleasing.

By recognizing the essential limitations of our new "friend" we may proceed to great heights of therapeutic efficiency.

Hospitals' Liability to Visitors

The wife of a seriously ill hospital patient went to the hospital to visit her husband. The only access to the hospital from the street was by a driveway which the complaint in an action against the hospital described as being a glare of ice, from which the last sanding had been washed away by rain several hours earlier, as was well known by the hospital's superintendent. There was no separate footwalk.

The visitor entered in the evening from a street that was well sanded. Before entering, she observed the condition of the driveway as described in her complaint. She proceeded carefully, but fell and was injured when she attempted to step aside to avoid being hit by an outgoing automobile. On evidence of these facts, she obtained a directed verdict. The hospital excepted. The New Hampshire Supreme Court sustained the exceptions and rendered judgment for the defendant. (*Sandwell vs. Elliott Hospital*, 24 A. 2d 273).

The relationship of a patient's visitor to a hospital has usually been described as that of an "invitee" or a "business visitor", without reference to whether the entrant is a pure caller or comes to help the patient to enter or leave the hospital. This case was presented as if the plaintiff were a "business visitor". With this theory, however, the court did not agree, holding that the "business visitor" or "invitee" relationship depends upon the mutual benefit of the visit to the entrant and the possessor of the premises. "If", the court said, "there would have been any benefit or advantage to the defendant in the plaintiff's intended visit to her husband, if it would have had even the slightest tendency to forward the business or promote the interests of the defendant, the benefit or the tendency would have been purely accidental. Those who enter a hospital merely to make a call upon a patient, are, of course, suffered by the hospital to be there, but they come to see the patient not the hospital. The primary mutuality of interest is that of caller and patient."

The defendant's "business" was that of a public charity. As such it was entitled to some consideration concerning its duty of care even to its patients beyond what an ordinary business corporation can claim. Under the circumstances of this case, where mutuality of interest of the parties was faint, if it existed at all, the court concluded that the plaintiff was not to be treated as a "business visitor" of the charitable defendant.

The plaintiff was held to stand "no better than a 'gratuitous licensee,' to whom no duty is owed as to the condition of the premises, except to warn of dangers actually known by the defendant and not open to ordinary observation by the plaintiff. Since the icy condition and the attendant dangers were fully observable and fully appreciated by the plaintiff, no duty was imposed on the defendant."

Obituary

The Honourable William Renwick Riddell

One of the oldest contributors to the *MEDICAL RECORD*, Chief Justice William Renwick Riddell, LL.D., D.C.L., died at his home in Toronto, on February 18th. Riddell was one of the most learned men that we have ever met. His formal education included the Cobourg Collegiate Institute and Victoria University in Toronto, and he was a gold medalist at Osgoode Hall where he was graduated in 1883.

In spite of his education he was a learned and sensible man with a deep sense of responsibility to mankind and a profound appreciation of the incongruities of life which lent a keen edge to his sense of humor.

He held eleven honorary degrees from various universities in Canada, the United States and Britain, and was the senior honorary member of the American Bar Association, a Fellow of the Royal Historical Society and of the Botanical Society of Edinburgh. He was a great friend of Sir William Osler, who once offered him an honorary M.D. degree from the University of Oxford. His interests were extremely varied as can be seen from some of his published works, "*La Rochefoucauld's Travels in Canada, 1795*", "*Old Province Tales*", "*Michigan Under British Rule*", and many others.

When he first started to practice law, he became enmeshed in many murder cases, and he enjoyed talking about these and the many queer quirks which he encountered and their legal ramifications. He read with ease Hebrew, Latin, and Greek, and one of his chief enjoyments was to write on historical medical subjects, most of which were published in the *MEDICAL RECORD*.

We, unfortunately, were involved in what he considered his favorite story: a previous report, somewhat premature, of his death. In a rare good humor he took us to task for paying any attention to a news item which told that he had died. He was an unusually remarkable man, kind, just, unbiased. To the last he was alert and unchanged. We regret his passing but remember with deep gratitude and pleasure the rich, full and useful life this man lived.

News Items

Stuart McGuire Lectures.—Dr. R. H. Smithwick, of the Massachusetts General Hospital, Boston, delivered the annual Stuart McGuire lectures in the Simon Baruch Auditorium on April 5th and 6th.

New England Society of Physical Medicine.—At a regular meeting of the New England Society of Physical Medicine, held in Boston Wednesday evening, March 21, Kurt S. Lion, Eng. D., assistant professor of applied biophysics at the Massachusetts Institute of Technology, read a paper on the "Physics of Short Wave Therapy".

Club for Research on Aging.—The American Division of the Club for Research on Aging has elected the following officers to serve for the ensuing year: chairman, Dr. William deB. MacNider; secretary, Dr. Edward J. Stieglitz; executive committee, Dr. E. V. Cowdry, chairman, Dr. Joseph C. Aub and Dr. A. Baird Hastings.

Harvey Lecture.—The sixth Harvey lecture was delivered at the New York Academy of Medicine Thursday evening, March 15th, by Dr. Edwin B. Astwood, assistant professor of pharmacotherapy, Harvard Medical School. The topic of the lecture was "Chemotherapy of Hyperthyroidism".

Biggs Memorial Lecture.—The twentieth Hermann M. Biggs Memorial Lecture was delivered on Thursday evening, April 5th, by F. C. Bishopp, Ph.D., assistant chief in charge of research, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture. The topic of the lecture, which was given under the auspices of the Committee on Public Health Relations, was "The Medical and Public Health Importance of the Insecticide DDT".

Symposium on Reconstructive Surgery.—At a combined meeting of the Sections on Surgery and Orthopedic Surgery of the New York Academy of Medicine, held on Friday evening, March 16th, the scientific program consisted of a symposium on the problem of reconstructive surgery. Dr. Arthur G. Davis outlined the general problem of reconstructive surgery, and Major Karl F. Mech, M.C., A.U.S., discussed the patient's part in handling the problem. Lieut. Commander S. Baron Hardy, M.C., U.S.N.R., described the various plastic procedures used, and Dr. Philip D. Wilson discussed the bone procedures.

Dangers from Tropical Diseases.—At a meeting of the Society of Medical Jurisprudence, held at the New York Academy of Medicine, Monday evening, March 12th, Dr. Howard B. Shookhoff, epidemiologist in the tropical diseases diagnostic service bureau of preventable diseases, New York City Department of Health, read a paper entitled, "Dangers from Tropical and other Diseases which Threaten Us as a Result of Global Warfare". Dr. Shookhoff discussed malaria, dysentery, filariasis, yellow fever, typhus fever and various other diseases endemic in areas involved in our global warfare. Particular attention was directed to preventing the importation of insect borne diseases and the value of DDT as an insecticide was considered. As a preventive measure, the importance of adequate facilities for the diagnosis of tropical diseases was emphasized. An interesting discussion followed.

Penicillin for Civilian Use.—Formal control over penicillin was relinquished by the Government on March 15th and the drug is now being distributed for civilian use through normal trade channels. Dr. John N. McDonnell, director of the War Production Board's Office of Penicillin Distribution, said that 1,280,000 vials of the drug were made available through March 31st and 1,500,000 vials would be allocated through April and succeeding months.

Iowa State Medical Society Cancels Meeting.—The annual scientific program of the Iowa State Medical Society, which was scheduled to be held in Des Moines, April 19th and 20th, has been cancelled in compliance with the request of the Office of Defense Transportation to dispense with all meetings of over fifty persons in the furtherance of the country's war effort. A meeting of the House of Delegates will be held if certain legal technicalities can be met.

Army Medical Research Board.—A medical research board has been set up in the Office of the Surgeon General to coordinate all Medical Department research with other staff agencies and components of the Army as well as with agencies outside the Army. Major General George F. Lull, deputy surgeon general, is president of the board; Colonel Thomas B. Turner, M.C., is special assistant to the president, and Lieutenant Colonel Leon H. Warren, M.C., is recorder. The Executive Committee for the board includes Brigadier Generals James S. Simmons, Stanhope Bayne-Jones, James A. Kelsner, and Rex McKinley McDowell; Colonel Howard F. Currie, M.C., and Lieutenant Colonels Roy H. Turner, John B. Klopp, M.C., and Michael E. DeBakey, M.C.

Symposium on Industrial Medicine.—A five-day course in industrial medicine was presented by the New York Post-Graduate Medical School, Columbia University, April 2d to 6th, under the direction of Dr. Harry J. Johnson and Dr. Frank R. Ferlino. This course was planned for industrial and public health physicians. In addition to the teaching staff of the School, the following guest speakers took part in this symposium: Dr. Leverett D. Bristol, Dr. C. Charles Burlingame, Miss Patricia Edgerly, Dr. Frederick B. Flinn, Dr. Forest D. Gibson, Dr. Eugene J. Gillespie, Dr. Edward C. Greene, Dr. J. P. Hogue, Dr. J. F. Johnson, Dr. A. J. Lanza, Dr. Raphael Lewy, Dr. Richard M. Mills, Dr. Dwight O'Hara, and Dr. Charles R. Williams.

American Psychiatric Association Cancels Annual Convention.—The American Psychiatric Association, the oldest medical society in America, has announced the cancellation of its one hundred and first annual meeting which was to have been held in Chicago, in May. It was the feeling of the Association that it would be the duty of the membership to fall in line with the request of the United States Government to cancel conventions in the spirit of the war cooperation. A meeting of the councillors of the Association was held on February 26th and 27th to devise means of taking care of urgent business of the Association arising out of the cancellation of the annual meeting. The Association has been extremely active in war psychiatry during the past two years and the councillors formulated plans for continuing the contribution made by members toward the advance of the war effort.

American Board of Obstetrics and Gynecology.—The general oral and pathology examinations (Part II) for all candidates will be conducted at Atlantic City, N.J., by the entire Board, June 14th to 19th. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates. The Office of the Surgeon-General (U.S. Army) has issued instructions that men in Service, eligible for Board examinations, be encouraged to apply and that they may request orders to Detached Duty for the purpose of taking these examinations whenever possible. For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh 6, Pa.

Tropical Disease Control.—A tropical diseases control program is being developed in the States Relations Division to meet the serious clinical problem posed by an expected increase of cases of tropical diseases in the United States, as a result of the war and of increased air travel, according to the *Military Surgeon*. The program is concentrated on seven diseases—malaria, amebiasis, ankylostomiasis, filariasis, leishmaniasis, schistosomiasis, and echinococcosis. Medical Director L. L. Williams, Jr., is heading the program, assisted by Paul Weinstein, parasitologist. Dr. Williams plans to employ six additional parasitologists and fifty technicians. The program is necessary because the general practitioner has little knowledge of the diagnosis and treatment of tropical diseases and few laboratories are acquainted with the exotic parasites or the methods for their discovery and identification. The most urgent of these two needs is the education of laboratory personnel. Under the program, a team of itinerant full-time lecturers will be used to stimulate the practitioners' awareness of the problem of tropical diseases and to bring them information on diagnostic points and therapy. The lecturers will contact local physicians through State health departments and State and local medical societies.

Salmon Lectures for 1945.—Dr. C. Charles Burlingame, chairman of the Salmon Memorial Committee, has announced the selection of Dr. Roy Graham Hoskins as the Salmon Memorial Lecturer for 1945. Dr. Hoskins, research associate in physiology, Harvard Medical School and director of the Memorial Foundation for Neuro-Endocrine Research, Boston, Mass., and the Worcester, Mass., State Hospital, has, for some eighteen years, devoted much of his time to research concerning endocrine disturbances in mental disease. He is internationally known for his contributions to both the neuroendocrinological and physiological fields.

"The Biology of Schizophrenia" will be the title of the Salmon Lecture Series to be given at the New York Academy of Medicine on three successive Friday evenings—November 2d, 9th, and 16th. In his introductory lecture, Dr. Hoskins will cover the nature of schizophrenia; the second lecture will deal with manifestations of schizophrenia at six different levels of integration—cellular, reflex, autonomic-endocrine, behavioral, intellectual and personal-social, and the third and last lecture of this series will deal with the treatment of schizophrenia and needs for the future. The Salmon Committee on Psychiatry and Mental Hygiene, appointed by the Council of the New York Academy of Medicine, is sponsoring these lectures.

Personal.—Dr. Thomas J. Kirwin read, by invitation, a paper on urologic roentgenology at a meeting of the New York Roentgen Society, Monday evening, March 19th.

Dr. C.-E. A. Winslow, chairman of the department of public health at Yale University and for thirty years Anna M. R. Lauder professor of public health, will retire at the end of the current academic year. He will be succeeded by Colonel Ira V. Hiscock, professor of public health, now on leave of absence as chief of the public health section of the Civil Affairs Division of the War Department.

Dr. Francis Carter Wood, professor emeritus of pathology at Columbia University and director of pathological laboratories and of radiotherapy at St. Luke's Hospital, was the guest of honor at a tea given at the hospital February 14th, in recognition of his fifty years of service as a member of the hospital staff, according to *Science*. On this occasion his portrait, painted by Leonibel Jacobs, was unveiled by Lincoln Cromwell, president of the hospital.

Captain Cornelius A. Mahoney, of the Army Medical Corps, has been awarded the Silver Star Medal, on the recommendation of the Navy, for "conspicuous gallantry and intrepidity in action while serving as ship's surgeon aboard the U.S.S. LST 315 during the amphibious invasion of Sicily in July 1943". Captain Mahoney's home is in Forest Hills, N.Y.

Dr. Clay G. Huff, professor of parasitology at the University of Chicago, was invited to be a guest investigator of the Institute of Public Health and Tropical Diseases of Mexico City, and was granted leave from the university from March 1st to April 15th. Dr. Huff is well-known for his research in the field of malaria.

Brigadier General Hugh J. Morgan, chief consultant in medicine to the Surgeon General, has been named president-elect of the American College of Physicians.

Colonel Isidor S. Ravdin, M.C., commanding officer of the Twentieth General Hospital in India, has been appointed John Rhea Barton professor of surgery at the University of Pennsylvania School of Medicine. While Colonel Ravdin is on active duty, the Chair will continue to be held by Dr. Eldridge L. Eliason, who is retiring.

Dr. C. C. Coleman, professor of neurological surgery at the Medical College of Virginia, has been appointed one of the three civilian consultants to the Surgeon General of the Army.

Surgeon General Norman T. Kirk, U.S. Army, Brigadier General James S. Simmons, M.C., chief of the Preventive Medicine Service, and Colonel A. B. Welsh, M.C., deputy chief of the Operations Service, have returned to Washington after a six weeks' tour of the Pacific theater of operations, where they inspected all phases of medical department operation.

Major G. J. Dammin, M.C., has returned to the United States, having completed a mission in the India-Burma theater as executive officer for the Dysentery Commission of the Army Epidemiological Board. He has been assigned to direct the Division of Laboratories in the Surgeon General's Office.

Dr. Joseph T. Wearn, professor of medicine at Western Reserve University, Cleveland, has been appointed dean of the School of Medicine, succeeding Dr. T. H. Sollman, who retired last year.

Book Reviews

Metastases

Metastases. Medical and Surgical. By MALFORD W. THEWLIS, M.D., attending specialist in general medicine, United States Public Health Hospitals, New York, N.Y. With a foreword by HUBERT A. ROYSTER, M.D. Illustrated. Charlotte, North Carolina: Charlotte Medical Press, 1944. Pp. 230. Price \$5.00.

Most of us, when we hear the word "metastasis" think immediately of malignancy. This is correct, but we need also to think of "medical metastases" or transference of disease conditions, not necessarily malignant, by way of the lymph and blood streams to parts of the body remote from the site of origin.

Dr. Thewlis divides his book into sections as follows: 1, general considerations; 2, neoplasms; 3, infections; 4, infectious diseases; 5, miscellaneous diseases, and 6, regional metastases. The purpose of the book is to acquaint or re-acquaint students, general practitioners, surgeons, and roentgenologists with migratory agencies which extend disease of whatever kind to remote areas of the body. The illustrations are line drawings which show lymph nodes and their connections by lymphatic channels. Therefore, one can see at a glance just how a given lesion may extend out of bounds. On each page is an outline with headings and sub-headings something after the manner of student note-taking. However, the author recognizes that vicarious extensions also take place, and that metastasis does not always follow a definite course. But exceptions do not destroy a rule. The rule is that extensions follow, usually, the most direct anatomical route,—all other are "paradoxical".

In a work which shows such great study and research, it is a pity to find rather extensive "Corrigenda" on the flyleaf. One can only hope that a future edition will do away with such errors.

Military Neuropsychiatry

Manual of Military Neuropsychiatry. By HARRY C. SOLOMON, M.D., professor of psychiatry, Harvard Medical School; and PAUL I. YAKOVLEV, M.D., instructor in neurology at Harvard Medical School. With the collaboration of eleven doctors. Illustrated. Philadelphia and London: W. B. Saunders Company, 1944. Pp. 764. Price \$6.00.

This is another in that excellent series of *Military Manuals* which have been issued from time to time during this war. At the outset, it is the opinion of this reviewer that it excels in readability and actual practicality any of those that precede it, and he has reviewed them all. Here we have a graphic presentation, a picture, of a soldier, in the making, when he is made, and when he must be discharged because he cannot be reclaimed. The notation is made that no man, however strong in mind and body, can undergo endlessly the rigors of war without somewhere at some time breaking down. There are limits beyond which both flesh and spirit fail. While written for medical officers and others who have to deal with men in uniform, the authors hope that this book will have more than passing value. It should remain useful for years to come to any physician who has to deal with psychiatric and neurological problems in or out of "service", and that means all of us. It is an amazing experience to find a composite book written by nearly fifty men having

necessarily varying points of view, and yet so unified in the desire to analyze, diagnose, and offer constructive advice and help. The sympathetic understanding of the service man and his problems, both at the induction seat and under hardships of field conditions is phenomenal. About every type of human, normal and abnormal, is described in this volume, and yet it is not altogether objective. There is also the neuropsychiatry of the neuropsychiatrist, for he is not too different from other men. On page 481 *et seq.* there is a heading written by Major Samuel H. Kraines, Medical Corps, Army of the United States, dealing with the "Military Orientation of the Psychiatrist". There follow lectures in question and answer form and many illuminating questions make excellent reading. In short, this is a handbook which should live for many years.

Medical Mycology

Elements of Medical Mycology. By JACOB HYAMS SWARTZ, M.D., assistant professor of dermatology, Harvard Medical School. Introduction by FRED D. WEIDMAN, M.D., professor of dermatological research, University of Pennsylvania. New York; Grune and Stratton, 1943. Pp. 179. Price \$4.50.

Swartz has produced the most useful book in English on the fascinating subject of medical mycology, which is of interest to all physicians and pathologists. True enough, it cannot replace the compendium of Sabouraud, but that was in French and is now out of print. In this volume, the language is brought down to the level of the laboratory technician, hence the physician may with propriety offer it to his staff of nonmedical people. Lewis and Lewis and Hopper projected their efforts elsewhere. The studies of Hopkins, undertaken as a war service, are not yet published.

Swartz combines the laboratory and the clinic. Reproductions of organisms and the photographs of patients with skin manifestations of infestation are presented in great profusion. Nomenclature and glossary are welcome additions to a work of this high calibre. Interestingly enough, the work does not mention Fleming and his researches on penicillin, which are of such great significance.

However, the prevalence of mycotic infestations and the possibility of confusion with industrial skin insults make the need for the work of Swartz increasingly acute. The reputed epidemic of ringworm of the scalp of school children likewise increases the number of physicians required to know about the organisms.

Dermatology

Essentials of Dermatology. By NORMAN TOBIAS, M.D., senior instructor in dermatology, St. Louis University, etc. Second edition. Philadelphia, London and Montreal: J. B. Lippincott Company, 1944. Pp. 497. Price \$4.75.

This brief treatise on skin diseases summarizes the current advances in practical form. The classification of the various types of dermatoses is based on the clinical, pathological and etiological concepts universally accepted. In fact, the author stresses each disease from the viewpoint of internal medicine to eliminate the notion that dermatology is a collection of Latin and Greek names descriptive of superficial aberrations. Effective therapeutic measures are formulated in a concise manner with economy of space in the book and of time to the patient. New editions bring vitamin and sulfonamide therapy up-to-date, but military dermatology has not been included. There is ample illustrative material of common disease entities.

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APRIL 1945

Medicolegal Notes

Vitamins are Food Products, Not Drugs

The New Jersey Court of Common Pleas, Board of Pharmacy v. Quackenbush and Co., 39 A. 2d 28 recently dismissed a complaint against a department store for violating a New Jersey statute by permitting the retailing and dispensing of vitamin plus capsules by a person neither a registered pharmacist or registered assistant nor under the immediate supervision of a registered pharmacist. The court's reason for dismissal was that "vitamin plus, whether called an accessory food factor or a dietary supplement, is still essentially a food product", as claimed by the defendant, and so not within the statute.

The content description of vitamin plus is marked on its cellophane-wrapped package, which the retailer merely hands over to the purchaser, who places no reliance on the skill and knowledge of this dispenser.

The terms "drug" and "medicine" are not defined in the New Jersey statute. The definitions of these terms in the Federal Food Act are not applicable to this statute, the purposes of the two statutes being different. The prescription of certain foods in the dietary treatment of disease does not, the court holds, transform

the article prescribed into a medicine by the act of prescription alone. And a substance does not become a medicine as a fact merely because of the form, in this case capsules, in which it is marketed. "Vitamins, as such, are not listed in the *Pharmacopoeia*; they are elements contained in ordinary foods and are constituents of food products, apparently the fact that they are concentrated does not change their essential character".

It was conceded in the evidence that vitamin plus capsules are harmless and can have no ill effect. The purpose of the New Jersey statute is to protect the public against the sale of poisons and powerful drugs without the protection of skilled safeguards. An alternative defense of the store was that if vitamins plus should be held to be a medicine, it is in fact a non-poisonous or proprietary medicine, and as such specifically excepted in the act.

The only recent case dealing with the problem presented in the New Jersey case appears to be *Kroger Grocery and Baking Co. v. Indiana State Board of Pharmacy*, decided November 6, 1939 (but with no opinion for publication), wherein it was held that vitamin capsules are necessary food factors and as such excepted from the operation of the Indiana State Drug Act.

Causal Connection

The testimony of three doctors that a workman's resistance had been lowered by arthritis following an accident, bumping his elbow against a bowl, that the accident was probably the cause of the workman's death from bronchial pneumonia, about a year later, did not meet the legal standard of proof of causal connection between the accident and death. And the death was not so immediate, direct, or the natural and probable consequence of the injury as to dispense with medical testimony establishing causal connection. A direct expression of professional opinion that lowered vitality due to an accidental injury was the principal cause of death from a germ disease is necessary to establish causal connection. *Franko v. United States Sanitary Mfg. Co.*, Pennsylvania Superior Court, 39 A. 2d 363.

Arthritic Disability Not Compensable in New Jersey

Testimony of a doctor to whom a compensation claimant was sent for x rays, that, from the pictures, the workman's trouble was "arthritic in origin" and the lack of any objective sign of any ailment or disorder whatever, and the workman's own conduct for seven months after the date of alleged accident to his back, was held proof that, if the workman suffered from any disability, it was not the result of a compensable accident. *Spitz vs. National Rubber Mfg. Co.*, (N.J.) 39 A 2d 170.

Successive Injuries

In determining permanent disability under the West Virginia workmen's compensation act the Commissioner, in the absence of a waiver, should take into consideration a prior nonindustrial injury suffered by the claimant, where this former injury magnifies the disability resulting from the later injury for which claim is made. *Hardin v. State Compensation Commissioner*, 31 S.E. 2nd 436.



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Medical Art Exhibit

As a tribute to the American medical artist, whose important part in recording advances in medicine has for the most part been unrecognized, a Medical Art Show of national scope, assembled by *Modern Medicine*, was opened at the Brooklyn Public Library, March 19th, and continued until April 7th. Twenty-six artists, representing almost as many schools of medicine and clinics, showed samples of their work as it is being used in medical journals, bulletins and manuals. While the medical artist's major work is a day-by-day recording of medical advances in the operating room, in the delivery room, or at autopsies, his contribution to war surgery is apparent in a number of illustrations.

Carl Adams, who is associated with the Walter Reed Hospital in Washington, D.C., presented a series of before-and-after drawings illustrating surgical rehabilitation of the war wounded. A fine study of the oscinid fly, a carrier of yaws, a threat to many of our fighting men in the tropics, was the work of Elizabeth Cuzort, a Brooklyn artist with the Long Island College

of Medicine. Alfred Feinberg, of the College of Physicians and Surgeons, Columbia University, exhibited a drawing of an abdominal scar. Advance proofs of a *Manual of Surgical Anatomy*, prepared under the auspices of the Committee on Surgery of the National Research Council, were shown. There were many valuable studies of the delicate tissues of the eyes, those by Annette S. Burgess, of the Wilmer Institute of Johns Hopkins Medical School, and Gladys McHugh, of the University of Chicago, and Theodora Bergsland, of Western Reserve University, Cleveland, being noteworthy. Studies of the hand by Mary Dixon, of the Department of Anatomy, Northwestern University Medical School, were important in the demonstration of reconstructive surgery.

The work of the late Max Broedel, whose teaching and art have influenced more medical artists than those of any other medical illustrator, and who was the founder of the School of Art as Applied to Medicine at Johns Hopkins Medical School, was a loan from his daughter, Elizabeth Broedel, staff artist with the Woman's Clinic of the New York Hospital.

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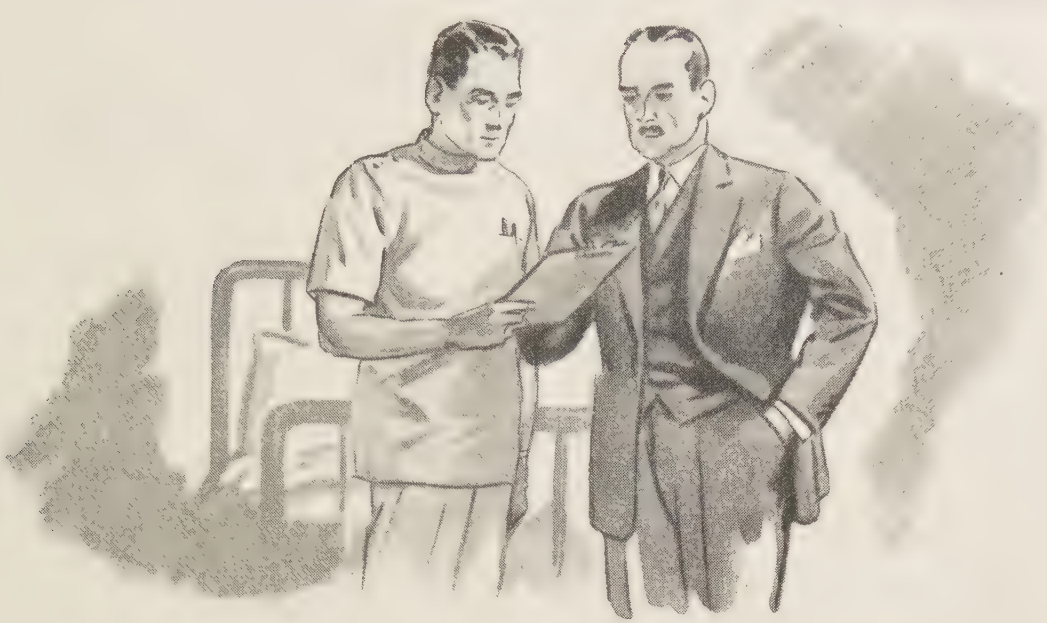
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Tetanus

Leslie Cole, M.D., Cambridge (*British Medical Journal*, February 17, 1945) reports two cases of tetanus, one an interesting example of severe local tetanus developing during a mild generalized attack and the other an example of severe tetanus. The author says that local tetanus occurs in mild cases most frequently after prophylactic antitoxin has been given and usually the local signs occur in the injured limb before generalized symptoms appear. In head wounds, paralysis or spasm of cranial nerves is another manifestation of local tetanus, and is an important warning that generalized tetanus will almost certainly develop. Some workers have suggested that local tetanus is caused by a toxin absorbed from the wound affecting the motor nerve endings locally before a toxin carried around in the blood stream has had time to produce its effect on the motor nerves generally or to involve the synapses in the brain and spinal cord.

In the case of local tetanus reported, the signs in the wounded limb were slight when the signs of generalized tetanus were marked. The local tetanus developed to an intense degree only after antitoxin had been given, persisting throughout the whole illness and even longer than the signs of tetanus in other parts of the body. The author points out that local tetanus of the type described in this case probably occurs without any detectable signs or symptoms of generalized tetanus later. The second case reported was an example of severe tetanus with a period of onset of not more than thirty-six hours, and the progress of the diseases suggested a bad prognosis. Three measures which proved helpful in the treatment were: 1, intramuscular paraldehyde to

control reflex convulsions and promote sleep; 2, a plaster-of-Paris bandage to keep the needle of the intravenous drip in the vein during the period when convulsions were frequent and severe; 3, the early administration of sulphathiazole when the possibility of lung infection was threatening.

Self-Treatment of Colds

According to a nation-wide survey conducted by the National Opinion Research Center, University of Denver, for the Physicians' Committee on Research, Inc., the vast majority of Americans are at least occasionally afflicted with the general discomforts of a cold. It was found that seventy percent of the people of the United States treat their own colds; eight percent see a doctor immediately, six percent try self-treatment first and then see a doctor if necessary, and two percent said they never had a cold. About one person in eight, thirteen percent, said he did nothing, but just let his cold run its course.

Many of those persons who treat themselves prefer "good old-fashioned home remedies." They drink plenty of water, fruit juices, soda and water, or hot lemonade; they take laxatives; they go to bed; they rub their chests with grease or use mustard plasters. Some recommend such homely cures as honey and onions, turpentine, or coal oil. About an equal number like patent medicines, commercial products; every brand has its adherents. A few prefer whiskey; still others have a favorite prescription. A number of persons said they used a combination of different self-treatments.

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In April 1944, Guatemala City was struck by typhus fever. Vital shipments of medicine and DDT insecticide, flown to the affected area from this country, helped check and turn back the progress of the disease.

Some time ago, a rancher in Guatemala received by air express enough antianthrax serum to save a large herd of cattle. About ten thousand cubic centimeters of the serum were sent from New Jersey; place of its manufacture, by domestic airline first and then via international air express to its destination.

In September 1944, 125 cc. of hog cholera virus vaccine were rushed to Haiti by plane as an emergency shipment. Requiring constant refrigeration, the extremely perishable cargo could not have withstood a slower trip by water. Later on in November, another rush shipment of vaccine was flown to Bolivia after several bubonic plague cases had been reported. Sufficient quantity of the vaccine was sent to immunize three hundred persons.

European regions are also receiving quantities of drugs, hospital equipment and laboratory material

by air express. Surgical instruments, x ray tubes, whole blood and blood plasma form a substantial part of the international air traffic during the past few war years.

Recently, the American Red Cross sent, by air express, five thousand tubes of penicillin to Geneva for the treatment of American prisoners of war. The largest single shipment of drugs, forwarded by international air express last year, weighed twenty thousand pounds and was flown to South America at the rate of three miles a minute.

Pest-destroying insects and white mice used for experimental purposes are continually being shipped as air express cargo. Department of Agriculture entomologists recently flew two thousand parasitized codling moths to their colleagues at Lima, Peru. California insectaries ship between forty and fifty million insects by plane each year to various parts of the world.

Dental supplies are moving in ever-larger volume by air express. About fifteen hundred sets of false teeth are flown each month by one airline to South and Central American countries.

Not all the medical traffic flies out of the country. Numerous cases of emergency imports by air express are helping to bind more closely together the northern and southern nations of the American continent.

Through its twenty-three thousand offices, the Railway Express Agency, expects to handle increasing amounts of medical and pharmaceutical material. Domestically, the Agency serves 728 air express offices including 375 airport cities, a number of which are points of international traffic.

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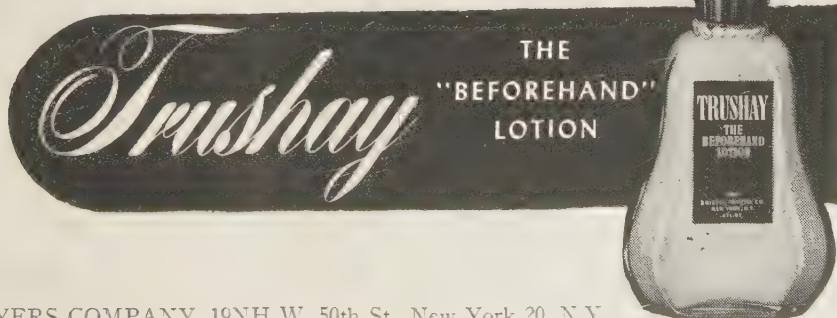
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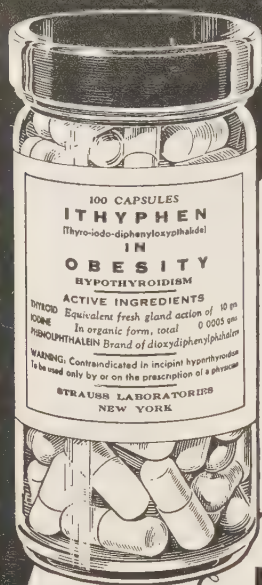
Speech Rehabilitation Clinic

Soldiers returning from war service with organic and psychological disabilities affecting their speech or their oral communication with others are receiving remedial training in speech at the University of Illinois Speech Clinic.

The clinic has operated for several years with a two-fold purpose of providing speech rehabilitation for University students and of providing a training laboratory for students who wish to prepare themselves as correctionists. The clinic now is extending its service to include returning veterans who have become mute, hard-of-hearing, dysphonic, aphasic, or dysphemic. Furthermore, students who have trained or are in training in the clinic are going out to veterans' hospitals and rehabilitation centers to aid in speech re-education of those soldiers needing such help.

Another new demand upon the clinic results from recent state legislation encouraging the public schools of Illinois to assist children in speech rehabilitation. Speech disorders, including speech defects associated with spastic paralysis, cleft palate, hearing deficiencies, dental anomalies, personality adjustment, glandular disturbances, and delayed speech, as well as functional defects, are studied by clinical students.

The students are given training in the use of special clinical equipment for the diagnosis and treatment of various defects. Such equipment includes the audiometer, breath control devices, motion pictures, the microphone and other aids. To insure adequate training in the clinical treatment of speech defects, students take correlated studies in psychology, sociology, physiology, physics, and neurology.



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Multiple Factors in the Etiology of Cancer

John A. Ryle (*The Lancet*, July 11, 1942) makes a plea for wider concepts and a new study of the etiology of disease. The discovery of specific microbic agents of disease, he said, and the recognition of specific chemical agents and specific deficiencies have, until quite recently, and contemporaneously with their immense benefits to medicine, had a peculiarly limiting effect upon the vision and the practice of many medical men, not excluding teachers. They have, in fact, compelled a neglect of the associated causal factors without which no disease can have its being. They have also fostered a belief in or search for single causes where none exist.

In regard to cancer he said whatever new knowledge may emerge from the various intensive studies so long and so patiently pursued in so many laboratories it appears probable (alike to its clinical observers and its experimental students) that this disease too must come to be classified among those dependent upon variable "multiple factors". Herein reside some of its chief difficulties. In all the more chronic types of disease—whether infective or neoplastic—it would seem that the several factors concerned possess a much more equivalent influence than is usually the case with the acute diseases.

It is known that in most cases of cancer age, sex and chronic irritation affecting certain organs or tissues are etiological factors which cannot be disregarded. It may even be suggested as likely that age and chronic irritation (through waning tissue activity) and sex (through changing hormonal balance) will be found to play a part as determining factors.

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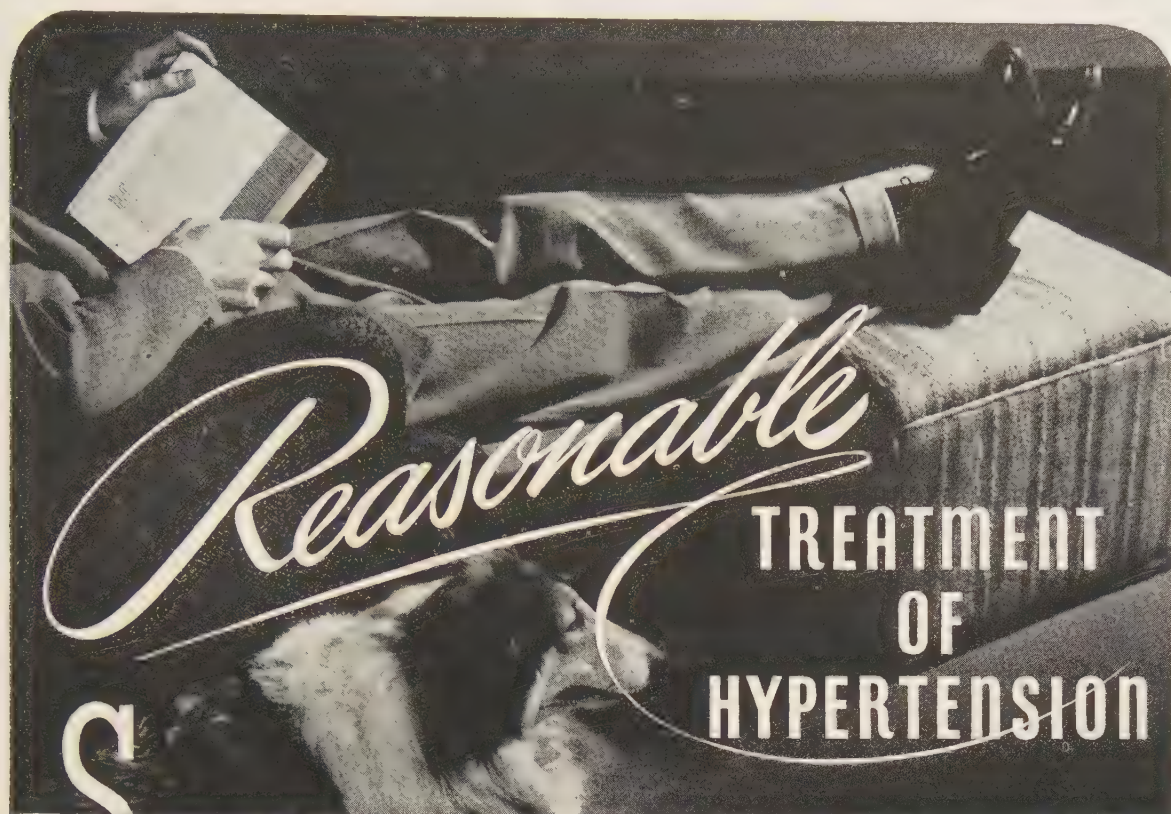
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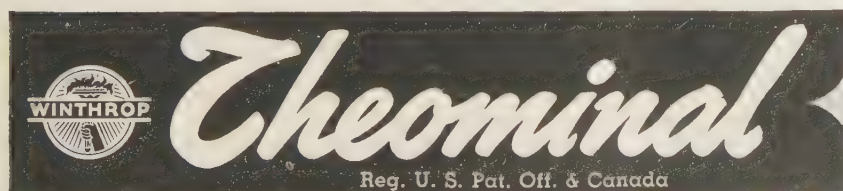
Reasonable TREATMENT OF HYPERTENSION

Successful management of high blood pressure calls for a regimen which is adjusted to individual requirements. Physical activity is generally curtailed and overwork is avoided. In certain circumstances special diets are prescribed and the use of stimulants is restricted.

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Associated Hospital Service

The annual report of the Associated Hospital Service of New York, published on March 13th, shows admitted assets of \$13,607,192.20, as of December 31, 1944, a gain of \$2,122,121.38 over the preceding twelve months' period. A total of 144,130 bills amounting to \$9,582,333.39 was paid to hospitals on behalf of subscribers for the treatment of more than fifteen hundred different kinds of illness, bringing the total of payments to hospitals since the service was first put into effect in May 1935 to \$55,903,112.23.

The report contains a statement of the year's increase in enrollment which broke all previous records and brought the overall total of subscribers to 1,804,127. New subscribers numbered 360,380, an increase of 218 percent over the previous year's enrollment gain.

The year's outstanding accomplishments are listed in the report as the addition of penicillin to the benefits; permanent adoption of a special dividend providing subscribers with the use of operating rooms, x rays, and laboratory examinations without money limitations; a new contract enabling persons who cannot afford semi-private accommodations to receive ward service; the lifting of restrictions on individual enrollment during a limited period; the adoption of special dividends making benefits available to subscribers for each illness instead of for each year, and the granting of an allowance to subscribers needing operating room service but who do not become bed patients; and the placement of the organization's sales, educational, and administrative facilities at the disposal of United Medical Service, Inc., "the doctors' plan" for prepaying medical and surgical expenses.

CHRONIC GASTRITIS

This catarrhal inflammation of the gastric mucosa is associated with deranged digestion, increased mucus formation and changes in the gastric juice. A well-planned diet rich in vitamins is considered to be an important therapeutic measure. In many cases dietary regulation is the most important therapy. In some cases foci of infection must be eliminated.

Medication, however, is often of much value in conjunction with diet therapy, especially if deficiency states are suspected. In these cases gastric enzyme replacement therapy should be tried. Gastron either plain or with Iron may be given by mouth. The latter preparation which presents all the elements of normal gastric juice, plus organic iron, is palatable and well tolerated.



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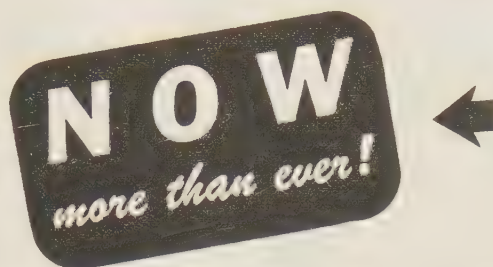
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Pyrethrum Cultivation

With one of the largest pyrethrum crops in the history of Kenya Colony, East Africa, now being released into war channels, plans are under way for more intensive peace-time cultivation of the daisy-type flower which is the source of the pyrethrins, base of most of the effective pre-war insecticides made in America, according to an announcement by George E. Nixon, on behalf of the Kenya Farmer's Association Co-operative, Ltd. Mr. Nixon said that except for a small amount not suitable for war use, the entire Kenya output of pyrethrum had been taken over by the military authorities. Under the stimulus of the British Ministry of Supply which had contracted for the entire crop of the Kenya farmers, more than fifty thousand acres were now under cultivation, he said, and vast tracts of additional East African acreage were available for future plantings. It is no secret that before the War the Kenya pyrethrum farms had produced, annually, as much as fourteen million pounds of the flowers containing the poison which is the deadliest known enemy to most forms of insect life but which is harmless to human beings and to warm-blooded animals.

Discussing possible post-war competition from Japanese farmers, Mr. Nixon stated that it had been established that the pyrethrum flowers grown in Kenya not only contain fifty percent more pyrethrin content than their Oriental counterparts, but the East African perpetual summer climate produced more or less continuous harvests as compared with a single Japanese harvest. Mr. Nixon emphasized that since freshness was an important consideration with pyrethrum, the Kenya product offered this additional strategic advantage.

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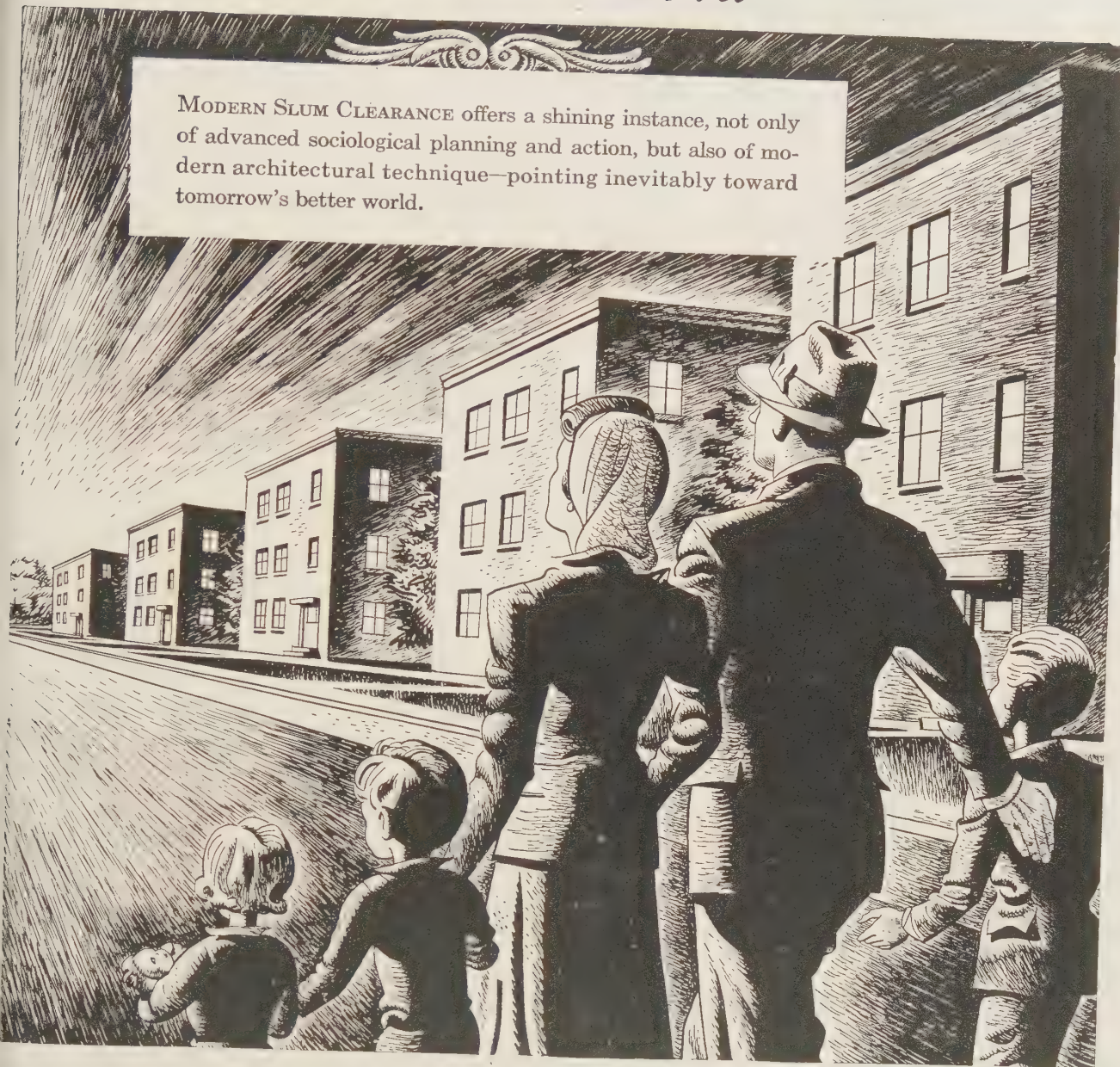
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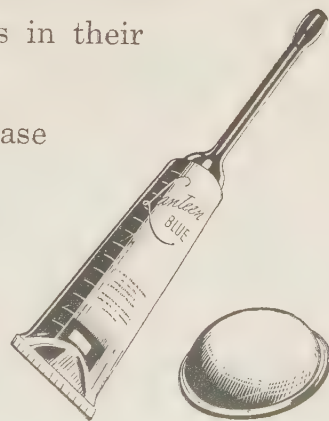
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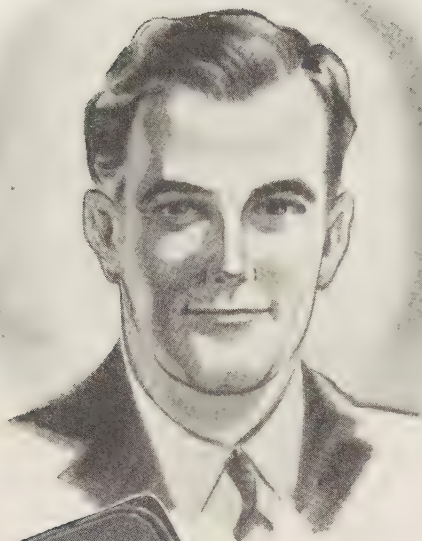


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Progress in Child Health

The past two decades have witnessed an extraordinary reduction in the general mortality among children of elementary school age, says the *Statistical Bulletin* of the Metropolitan Life Insurance Company. Among children five to fourteen years of age, insured in the Industrial Department of the Company, the death rate from all causes combined was cut sixty-five percent between 1922-1923 and 1942-1943.

As regards individual causes, the most spectacular gains were scored against the principal communicable diseases of childhood, which showed a reduction of no less than ninety-three percent in the past twenty years for the children of grade school age. The largest decrease was reported for diphtheria, the death rate from this disease among the insured children of elementary school age now being one-twenty-sixth of what it was two decades ago. Notable progress has also been made with regard to the other three diseases in this group, the decreases in mortality during the period amounting to nearly ninety percent for scarlet fever and eighty percent for both whooping cough and measles. The death rates from tuberculosis and pneumonia were reduced among children by fully three-fourths in twenty years, and there was also a decrease of seventy percent in the mortality from appendicitis. Rheumatic fever and organic heart disease recorded a drop of three-fifths in mortality over the twenty-year period. The death rate from accidents among children of elementary school age was cut almost in half in the past twenty years. Automobile accidents decreased fifty-two percent, mortality from accidental falls was reduced fifty percent, and the death rate from burns and scalds was decreased seventy per cent.

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Penicillin Treatment of Pneumonia in Early Infancy

Angus McBride (*Amer. Jour. Dis. Children*, October 1944) reports two case of pneumonia due to *Staphylococcus aureus hemolyticus* in infants aged four and five weeks respectively. These patients were given sulfadiazine in adequate dosage for forty-eight hours, but their condition became worse. Penicillin therapy was started at this time and though the use of sulfadiazine was continued, the dramatic improvement after penicillin was administered seemed to be due to that agent. The total amount of penicillin given the two infants was 41,000 and 50,000 units respectively. In the second case a total of 50,000 units of penicillin was given over a period of three days. The infant became edematous and two injections of plasma were needed. Improvement was noted twenty-four hours after penicillin was begun and after three days the patient was out of danger.

Infection caused by pneumococci and by beta hemolytic streptococci usually responds readily to adequate therapy with a sulfonamide compound. *Staphylococci* are much more resistant to sulfonamide compounds, and death often occurs in a few days even when adequate doses of one of these drugs have been administered. The author believes that young infants with bronchopneumonia who do not make a quick response to such therapy should be treated with penicillin without delay. Cultures should be made, but treatment with penicillin should be started at once without waiting for the laboratory report.

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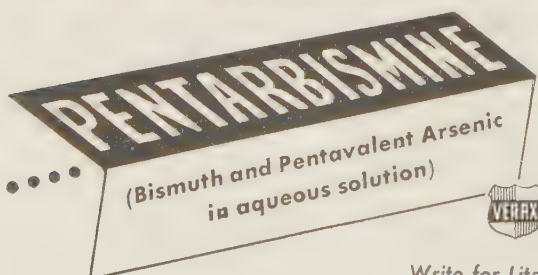
is often the result of unconscious fear induced by prudish notions or irregular bowel habits.

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War Office of Psychiatric Social Work to be Retained

The continuance of the War Office of Psychiatric Social Work, as an aid to the mental health and rehabilitation of servicemen, has been announced by Dr. George S. Stevenson, medical director of the National Committee for Mental Hygiene. This is a joint project of the National Committee for Mental Hygiene and the American Association of Psychiatric Social Workers and performs a valuable liaison function between psychiatric social work and the armed services. The work has proved such a valuable resource to Selective Service and to the mental health services of the armed forces that a proposed discontinuance of the War Office has been averted by securing additional financing, and the work will continue through 1945. Mrs. Elizabeth H. Ross, secretary of the War Service Office of the Association, has been appointed a consultant to the Surgeon General of the Army, bringing a more direct relationship between psychiatric social workers and the Army, through the Division of Consultants in neuropsychiatry.

Both neuropsychiatry and psychiatric social work have been utilized as important resources in the Army as they have also been in Selective Service. The Army has established services in conjunction with military psychiatry in station, general and neuropsychiatric hospitals, in consultation services in rehabilitation centers, in convalescent and reconditioning facilities and in redistribution centers. The Army is using its own enlisted personnel in conjunction with psychiatry.

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*Gastroenterology, 2:360, 1944.

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Medical and Surgical Relief

The report of the treasurer of the Medical and Surgical Relief Committee of America shows that during the six months period ending Dec. 31, 1944, the Committee's donations to twenty-one countries, including the United States, amounted to \$43,669.87. The territory covered by the Medical and Surgical Relief Committee has increased as the number of liberated countries has increased, and contributions now reach France and Italy. United States tops the list of beneficiaries with \$16,386.48 worth of medical, surgical and dental supplies of which the Navy got \$3,542.13, the Army \$1,025.40, and various civilian hospitals and welfare agencies the balance of \$11,818.95. The greatest number of shipments for this period went to China and India, while the most valuable single contributions, amounting to \$4,951.76 went to *L'Entree Aide Francaise* for the relief of French children.

New Penicillin Container

The Wyeth Laboratories have developed a new container for penicillin which protects the potency of the drug for long periods of time. This new container is called a "vipule", and is described as combining the features of the vial and the ampule. One vipule contains one hundred thousand Oxford units of penicillin and a second a sterile salt solution. An ingenious method of transferring the salt solution to the dry, porous penicillin insures the preparation of a sterile penicillin solution without exposure, which is said to be impossible when a syringe is used in the ordinary way.

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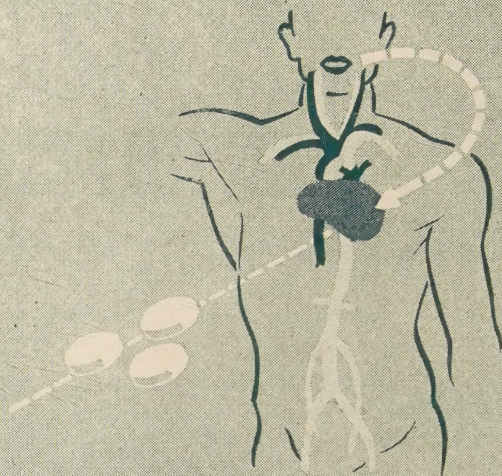
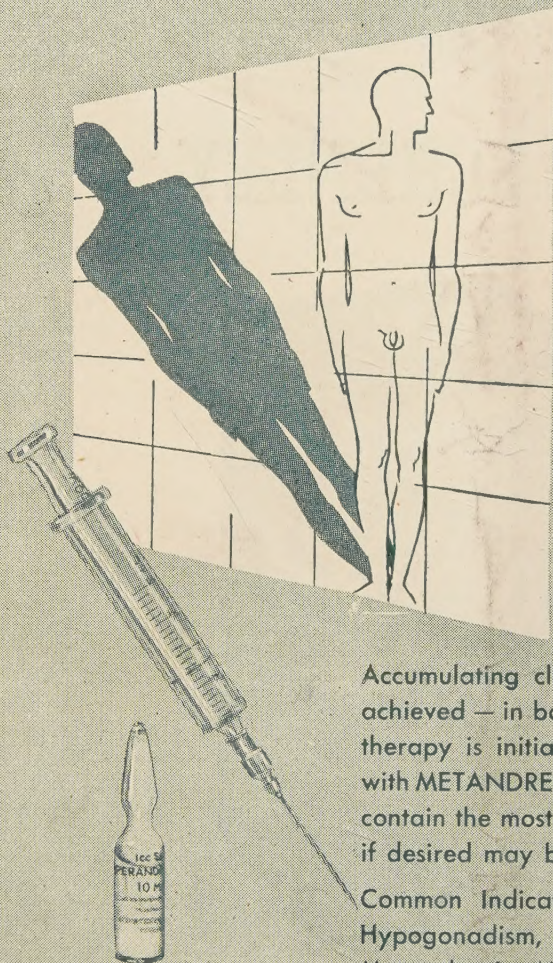
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